Appendix E

Method Reporting Limit Documentation (on CD)

Draft Memorandum

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Subject: *REVISED - DOE Herbicide, Pesticide, Polychlorinated bi-phenyl Method Verification Summary*

Executive Summary

The California Department of Toxic Substances Control (DTSC) and the United States Department of Energy (DOE) entered into an Administrative Order on Consent for Remedial Action (AOC; Docket No. HSA-CO 10/11-037) on December 6, 2010. The AOC describes three chemical investigation activities to be completed for soil within Area IV and the Northern Buffer Zone (NBZ) at the Santa Susana Field Laboratory (SSFL):

- Phase 1, Co-Located Samples
- Phase 2, Co-Located Samples from Random Locations
- Phase 3, Chemical Data Gap Investigation

The Phase 1, Phase 2 and Phase 3 chemical investigation activities have been completed.

During the Phase 1 co-located chemical soil sampling efforts, the program contracted with analytical laboratories that were able to modify standard methods in an effort to produce analytical data with the lowest analytical method reporting limits (MRLs) achievable. In order to achieve these low levels for certain organic methods (including pesticides, polychlorinated biphenyls/triphenyls (PCBs/PCTs) and herbicides), a method modification was utilized by the contracted laboratories for the preparation procedure, which included an increase in mass of soil extracted, and a decrease in volume of the final extract. This modification was intended to allow for sample preparation that would result in MRLs approximately one order of magnitude less than the primary laboratories routine MRLs.

During the Phase 1 work, a concern was raised by DTSC chemists regarding this method modification. The concern involved the possibility that the modification would not only result in the retention of more of the target analyte in the final extract, but also the retention of more interfering compounds and complexes. The interference could have a negative effect on the

analytical results and data quality for the target analytes, increasing the level of uncertainty to a level unacceptable for the project's analytical program. By driving down the MRLs (and method detection limits (MDLs)), the effect of site soil matrix interference becomes a bigger issue, which can potentially impact the confidence in identifying if the analyte is actually present, and if it is the true target analyte at the low MRLs. This concern is of upmost importance for these organic methods, as individual sample data generated under the AOC investigation is to be screened against values from the chemical look up table. The justification for addressing this concern is to ensure that data generated for this analytical program is defensible, with analytical uncertainty appropriately constrained such that the method can confidently detect an analyte and its concentration can be reported with a reasonable degree of accuracy and precision. Without this level of confidence, the potential increases for making an erroneous decision that a sample result may exceed background, when in fact it does not. This type of decision error can lead to determination of the need for cleanup of areas that may not actually exceed background. A balance is needed to maintain a sufficient level of confidence that manages and minimizes the decision error associated with determination of exceedance of background where there is no difference, as well as failing to determine an exceedance of background, when there actually is a difference.

To address this concern, the DTSC chemists suggested conducting an MDL study for herbicides incorporating the method modifications to allow the evaluation of the method preparation modification's effect on a clean sand sample. The precision of the MDLs generated for some of the herbicide constituents was found to be unacceptable for the analytical program. The MDL study addressed the effects of the method modification on clean sand, yet the site soil can be a source of matrix interferences affecting the ability to determine concentrations at the low levels. Certain quality control steps can be taken to demonstrate that site soil matrix is not impacting data quality results at these low levels, such as low level matrix spikes, but these steps were not taken early in Phase 1 on a consistent, per sample batch basis. Thus, it was not demonstrated that the data generated at these low levels was not affected by site soil matrix interferences. There is some concern over defensibility of the data quality during Phase 1.

After a thorough review of the low level MRL procedures and results, and in order to address the unacceptable analytical uncertainty associated with the method modification, Phase 1 MRLs shall be adjusted to the laboratories standard routine MRLs prior to modification. For Phase 1 existing data, non-detects will be adjusted (elevated) to the standard routine MRL and will continue to be considered as non-detect values. The detected results will not change, but will be qualified as estimated values if the result is between the laboratories standard routine MDL and MRL. Only MRL values will be changed. MDL values will remain the same. These adjustments have been made for purposes of generating a dataset to be used for screening against the look up table, and the adjustments will be documented and made available to the public. For future characterization sampling, it was proposed that analyses using these methods (pesticides, PCB/PCTs and herbicides) utilize standard analytical MRLs and MDLs. Thus, the Phase 3 chemical data gap sampling utilized standard analytical MRLs and MDLs, as recommended. If the low level MRLs are to be utilized in

the future, a low level quality control program is recommended and should be utilized on a per sample batch basis to demonstrate that the data meet acceptable data quality criteria.

The following sections of this memorandum provide a detailed discussion of the low level method modifications and the results of this evaluation. This memorandum also discusses the results of the method verifications for the low level MRLs for pesticides and PCBs.

1.0 Introduction

The California Environmental Protection Agency Department of Toxic Substances Control (DTSC) and U.S. Department of Energy (DOE) Administrative Order on Consent (AOC) requires soil cleanup to achieve values based on local background or method reporting limits (MRLs) for soil contamination in Area IV, the Northern Buffer Zone (NBZ), or contiguous and emanating areas of Area IV or NBZ of the Santa Susana Field Laboratory (SSFL). The AOC does not specify the actual MRL values to be used, but it defines this term as "the lowest concentrations at which an analyte can be confidently detected in a sample and its concentration can be reported with a reasonable degree of accuracy and precision." To further clarify "lowest concentrations," DOE's Phase 1 Field Sampling and Analysis Plan dated October 14, 2010 stated the following: "the chemical cleanup to background or cleanup to detection limits, whichever is greater. However, the chemical background values for SSFL are currently being developed as well as the chemical one-in a million risk-based screening levels (RBSLs) for the rural residential scenario. Detection limits should be based on both considerations. Because background values and rural residential RBSLs are not currently available, analytical detection limits used in this study will be based on reporting limits previously provided by DTSC that approximated the order of magnitude of the suburban RBSLs (MWH Americas, Inc. 2005) lowered by two orders of magnitude."

The Santa Susana Field Laboratory (SSFL) project under the AOC has been conducting required soil sampling for the last four years. Specific project objectives require laboratories that have been analyzing data for the site to attempt to meet lower method detection limits (MDLs) and method reporting limits (MRLs). The methods for which attempts were made to achieve this lower reporting limit include herbicides method SW-846 Method 8151/8151A, pesticides method SW-846 8081 and PCB method SW-846 method 8082. Modifications were made to the methods in anattempt to achieve these lower MDLs and MRLs. Based on a review of the herbicide results and MDLs and MRLs, it was determined by DTSC chemists (with concurrence from DOE chemists) that an evaluation of this modified herbicide method was required to verify the low level MDLs and MRLs. The initial laboratory analyzing samples for this project was Lancaster Laboratories, Inc. (LLI); they were subsequently requested to perform a method verification study on the modified herbicide method. EMAX Laboratories, Inc. (EMAX) was the second laboratory utilized to perform sample analyses; they also performed method modifications to meet these low level MDLs and MRLs. The results of the these two laboratories modifications are presented below.

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The DOE chemistry team has since conducted an evaluation of the method verification study performed by LLI for the modified herbicide SW-846 Method 8151/8151A. SW-846 is an Environmental Protection Agency (EPA) publication titled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* and is EPA's official compilation of analytical and sampling methods that have been approved and evaluated to comply with the Resource Conversation and Recovery Act (RCRA) regulations. Twenty-one replicate spikes were processed by LLI for the method verification study which yielded MDL results and relative standard deviations (RSDs) that were, in some cases, higher than the unmodified method, and potentially higher than acceptable for the DOE analytical program.

These method verification study results were evaluated by the DOE chemistry team to identify implications to:

- The herbicide method modification used during the Phase 1 co-located and Phase 2 random sampling programs
- The existing data generated using this method modification
- Other modified methods that were used during the Phase 1 and Phase 2 soil sample analysis

This memorandum was originally written in March of 2012, however, details of the modified and unmodified preparation factors were not specified therein. This revised memorandum presents detailed information provided by the laboratories that support making the necessary adjustments from modified MRLs to non-modified MRLs for Phases 1 and 2 herbicide, pesticide and PCB results.

<u>Pesticides and PCBs</u>

At the same time herbicide MRL's were being verified by and MDL study is was decided ,that the pesticide and PCB MRLs would be evaluated through separate means. All entities agreed that an MDL study was not appropriate at that time but that additional "low level" QC samples would be analyzed. The additional soil quality control (QC) samples were (conducted on a per batch basis) were spiked near the reporting limit to verify the reporting limits and to evaluate precision and accuracy results. Details of these results are discussed below along with the information necessary to make the adjustments from modified MRLs to non-modified MRLs for Phases 1 and 2 pesticide and PCB results.

1.1 Analytical Laboratory Limits

Many protocols/procedures have been developed by laboratories to verify that analyzed data are scientifically valid. One part of this process is determining the lowest level of an analyte that can be detected in a site sample and whether that level is defensible. Three key components to verify this level are instrument detection limits (IDLs), MDLs and MRLs. The IDL indicates the presence of baseline electronic or background noise in the instrument and attempts to provide an indication of

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what signal should be regarded as noise and what signal is a direct response to a target analyte. The IDL is determined by using the instrument repetitively to test a target analyte-free sample (clean blank sample) or extract over several days which tests the background signal by itself. The standard deviation is calculated from these repetitive results. The IDL value is then determined by multiplying this standard deviation by three. Any signal higher than the IDL is considered statistically significant compared to the noise level of the instrument. In general, the IDL is not a measure of the capability of the test procedure to measure a target analyte in a sample but a measure of the instruments ability to distinguish between an instrument signal and the presence of a target analyte.

The MDL as defined in 40CFR Part 136 Appendix B is the "the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte." An MDL study uses seven aliquots of an interference-free spiked clean sample matrix such as deionized water and/or Ottawa sand (homogeneous quartz sand) spiked with a known amount of the target analyte and are taken through the entire sample preparation and instrument analysis process. Seven aliquots have been determined to be the best balance between the effort to perform the study and the desire to use a small sample set of data that is sufficient to ensure a certain level of confidence. From these analyses the standard deviation of the results (e.g., a measure of precision) is determined and then multiplied by the appropriate statistical number to achieve a 99% confidence level.

The MDL is not a measure of the lowest level of analyte in a sample that can be reported with accuracy but is a measure of the ability of the test procedure to generate a positive response for the target analyte above the instrument noise level in the absence of any other interferences from the sample. Interferences are unwanted compounds that impair the ability to constrain the analytical method uncertainty at the specific action level. In general terms, an interference can be positive or negative and they can either hide the presence of a real target analyte in the sample (a false negative) or they can generate a positive signal in the analysis without the target analyte actually being present in the sample (a false positive).

The MDL is actually a determination of the precision of obtaining a response from very low levels of a target analyte and has no bearing on quantitative accuracy. A MDL is a statistically calculated concentration where it is expected to "qualitatively" identify the target analyte. For example, if the true concentration of an analyte in a sample is equal to the MDL, there is a 50 percent chance the analyte will be detected and a 50 percent chance it will not be detected. The minimum level of a target analyte in a sample that can be detected and accurately quantitated is generally defined as some multiple of the MDL. There is no uniform procedure for this determination and this level may be anywhere from five to 20 times the MDL. This value then becomes the MRL for that specific analyte. An MRL can thus be defined as the lowest concentration at which an analyte can be

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confidently detected in a sample and its concentration can be reported with a reasonable degree of accuracy and precision.

MRLs are based on the following:

1. Preparation factor (expressed as the ratio of mass extracted versus the final volume of the extract after cleanup procedures)

2. Instrument sensitivity (measured as baseline to noise ratio)

3. Volume of extract injected in the instrument (analyzed)

4. Calibration levels

5. MDL studies

Preparation factors are calculated as follows:

Preparation Factor = Mass Extracted/Extract Final Volume

Larger preparation factor ratios result in lower MRLs because more of the target compounds can be concentrated into a smaller volume of extract for analysis. However, these larger ratios also concentrate the interferences associated with low level MDLs and potentially magnify the negative effects of these interferences.

1.2 Site Specific Rationale for Modifications

For the SSFL site, MRL goals were very low based on the AOC language which required compliance with applicable state laws, including California Senate Bill 990. Two laboratories were contracted to analyze SSFL samples at these low levels. LLI's procedure for accomplishing this request resulted in a mathematic adjustment to their MRL and MDL. These values were derived by a modification to the sample preparation in an attempt to achieve lower project MRL target goals for Phase 1 and Phase 2 analyses. EMAX Laboratories Inc. (EMAX) was the second laboratory; they utilized an adjustment to the initial calibration as well as a method modification to the sample preparation.

While it may be acceptable to mathematically adjust MRLs and MDLs lower, a laboratory is still required to demonstrate that they are meeting the regulatory definition of an MDL. This definition is a measurement quality objective that constrains the false positive error rate (e.g., concluding that the analyte is present at the detection limit when, in fact, it is actually absent) to one percent.

In order to verify whether the preparation modifications for both laboratories and the calibration modification performed by EMAX were acceptable, MDL studies were performed by both

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laboratories as well as the requested method verification study by LLI. MDL studies are laboratory-specific and are a measure of the laboratory's sensitivity using the laboratory's chemicals, equipment and staff. LLI and EMAX performed initial MDL studies to demonstrate the ability to differentiate the signal of the presence of an analyte from the electronic "noise" of the instrumentation at a high level of confidence. Both laboratories MDL studies did not use site soil but a clean matrix (Ottawa sand).

Due to the expedited start of the project, an initial MDL study prior to sample analyses by LLI could not be performed until May 2011. The results of LLI's May 2011 MDL study showed similar results as the method verification study indicating that the MDLs and MRLs were defensible (XXXX).

EMAX had sufficient time before sample analyses to perform a limit of quantitation (LOQ) study at the low levels requested. Ideally the calculated MDL should be no lower than 1/10 of the spike level. This is referenced in CRF Title 40 Part 136 Appendix B "(3)(b)(2) The sample may be used as is for determining the method detection limit if the analyte level does not exceed 10 times the MDL of the analyte in reagent water. The variance of the analytical method changes as the analyte concentration increases from the MDL, hence the MDL determined under these circumstances may not truly reflect method variance at lower analyte concentrations. Reporting Section: If the level of analyte in the sample was below the determined MDL or exceeds 10 times the MDL of the analyte in reagent water, do not report a value for the MDL." This is a qualitative evaluation; if the calculated MDL is higher than 1:10 MDL concentration to analyte concentration ratio, this could indicate that the analyte was spiked too low. For EMAX's herbicide MDL study, 6 out of 10 compounds were above the 1:10ratiolevel as shown in Table 6 indicating that the spike level may have been too low.

As the data was further evaluated, these low level detection limits were questioned regarding whether the MDLs and MRL results would be defensible when applied to site soil samples. The modifications of the herbicide method SW-846 Method 8151A used during Phases 1 and 2 were identified by DTSC as requiring additional verification due to the complexity of the preparation procedure. Therefore, LLI's herbicide method verification study results were reviewed along with both laboratories MDL studies to evaluate the effects of the modifications on the reported MRL and MDL values.

2.0 LLI Modified Herbicide Method Verification Study Procedures

The modified herbicide method verification study consisted of a MDL study in triplicate (seven replicate analyses performed over 3 days) by the initial project laboratory, LLI. Seven replicate samples were spiked with the target compounds between one and five times the estimated MDL. Five of the target compounds were spiked below the MRLs used for Phase 1 of the DOE co-located program and five of the compounds were spiked above the aforementioned MRL. The target compounds were spiked into a clean matrix (Ottawa sand). The samples were then processed through the entire modified preparation procedure including the methylation step (diazomethane) and analyzed per method requirements. To lower the MRLs by a factor of 10, LLI modified the

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herbicide method by adjusting the method-required 30 grams of sample and final volume of 10 milliliters (mls) to 60 grams of sample and a final volume of 2 ml. All sample extracts were required to have a fluorisil cleanup procedure; this helps to reduce interferences. The calculated modified method MDLs (as produced in the MDL study) were compared to LLI's Phase 1 reported MDLs; some analyte MDLs exceeded LLI's mathematically-derived Phase 1 MDLs as shown in Table 1.

As stated previously, both laboratories used a clean matrix (Ottawa sand) to perform the MDL studies. Site soil from SSFL is a heterogeneous mixture of various minerals, each having different chemical compositions and physical properties. The clean Ottawa sand is not the same as site soil, and does not take into account interferences present in SSFL site soil (including "clean" site soil) that impact accuracy and variability (precision). These interferences cause more variability and increase standard deviation which increases the calculated MDL value.

With input from DTSC chemists, another evaluation of the low level MDLs and MRLs was conducted by DOE through the analysis of laboratory control samples (LCSs) and matrix spikes (MSs). Target compounds were spiked at levels approaching the targeted lower MRLs for methods that had been modified. These additional quality control (QC) sample requirements were implemented during the latter portion of the Phase 1 co-located sampling program and are discussed in separate memoranda.

3.0 LLI Modified Herbicide Method Verification Study Results

The summary of results below is limited to the LLI data generated during the method verification study. The percent recoveries, calculated MDLs, and relative standard deviations (RSDs) resulted in varied MDL values. The variability was anticipated to be higher than the calculated MDLs for the modified herbicide method; however, the variability may exceed the acceptable range for the DOE analytical project goals. Six of the ten herbicide compounds had MDLs calculated (see Table 1) using the 21-point study that were greater than the Phase 1 MDLs used by LLI, and two of the herbicide compounds had 21-point study MDL values greater than the MRL used by LLI for the co-located sampling program.

Table 1 presents the calculated MDL resulting from each of the three MDL studies performed for the verification along with the combined 21-point result. The three independent MDLs were calculated using a Students' t value of 3.143, sample size (n)=7, as described in 40CFR Part 136 Appendix B. The "MDL 21 Point" represents the pooled/combined MDL resulting from all 21 points in the three MDL studies. The 21-point MDL was calculated using the Students' t value of 2.528, n=21. Included in Table 1 are the modified LLI MRLs and MDLs utilized during the Phase 1 co-located sampling program prior to the method verification study. The MDL and MRL values utilized by LLI prior to the method verification study were mathematically determined by dividing their standard MDL and MRL by the modified herbicide preparation factor of ten. Derivation and application of this modified preparation factor is further described in Section 4.

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Table 2 presents the precision of the three independent MDL studies, the precision of the 21-point MDL, and the precision of the method as published in SW-846 Method 8151A. Precision is the measurement expressed in terms of Relative Standard Deviation (RSD). It is a measure of random error, the type of error that is not well controlled. Table 2 provides the RSDs for each MDL test and the RSDs for the 21 points. As shown in Table 2, Method 8151/8151A, published in SW-846 compendium, has a greater degree of precision compared to the 21-point MDL study.

Table 3 presents the modified MDL and MRLs for the Phases 1 and 2 data compared to the MDLs for the 21-point study. This table also presents the highest MDL value of the three independent seven point studies for each analyte. Table 3 shows that the MDL 21 point value for four out of ten compounds exceed the Phase 1 modified herbicide MDLs and two out of ten compounds exceed the Phase 1 modified herbicide MRLs.

4.0 LLI Pesticide and PCB Method Verification Study Procedures and Results

Modifications were also performed by LLI for the pesticides and PCB analytical methods in order to achieve the lower reporting limits. The modification for pesticides consisted of extracting a greater volume of soil and concentrating the extract to a lower final volume with mandatory florisil and gel permeation chromatography (GPC) cleanup procedures resulting in a 5X reduction to the standard MRL. The modification for PCBs consisted of extracting a greater volume of soil and concentrating the extract to a lower final volume, with a mandatory sulfuric acid cleanup. These modifications resulted in a reduction of the standard MRLs of 10X.

In order to verify that LLI was achieving the lower reporting limits for pesticides and PCBs, LLI was requested in September 2011 to analyze additional soil QC samples spiked near the reporting limit. The QC samples for both pesticides and PCBs consisted of matrix spikes (MS) and laboratory control samples (LCS) that were spiked at the MRL. LCSs consist of an aliquot of blank matrix (sand) to which known quantities of the method analytes and all preservation compounds are added. The MS is prepared and analyzed exactly like the regular samples in the batch. MSs consist of an second aliquot of a sample in the batch to which known quantities of the method analytes and all preservation compounds are added. The MS is prepared and analyzed exactly like the regular samples in the batch.

Spiked parameters for pesticides and PCB were limited to the compounds and parameters specified in the methods and laboratory SOP's. The spiked parameters for pesticides included aldrin, alpha-BHC, beta-BHC, lindane, DDD, DDE, DDT, delta-BHC, dieldrin, endosulfan sulfate, endrin, endrin aldehyde, endrin ketone, heptachlor, heptachlor epoxide, and methoxychlor. The spiked parameters for PCBs were included Aroclor 1016 and Aroclor 1260.

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The results of the pesticide evaluation indicate that the sample preparation modifications affected the accuracy of the reported data at the lowered reporting limit for several of the compounds evaluated. These included aldrin, DDD, DDE, DDT, dieldrin, endrin, endrin aldehyde and methoxychlor.

As with the pesticide evaluation, the PCB evaluation also indicated that the sample preparation modifications affected the precision and accuracy of the reported data at the lower reporting limit for the range of mixtures covered by Aroclors 1016 and 1260 (SW-846 Method 8082 recommended spike parameters) as indicated by LCS and MS results. Because Aroclors 1016 and 1260 encompass a complete retention time range for all of the Aroclors measured, LCS and MS spikes are limited to these mixtures. Specific details of the MRL-MS and MRL-LCS studies are presented in Attachment D for pesticides and Attachment E for PCBs. For the MRL-LCS alpha-BHC, beta-BHC, lindane, DDT, delta-BHC, endosulfan sulfate, endrin ketone, heptachlor and heptachlor epoxide had recoveries within the control limits in over 75percent of the samples analyzed. The accuracy of the MRL-LCS samples for aldrin, DDD, DDE, dieldrin, endrin, endrin aldehyde and methoxychlor were outside of the control limits in greater than 25 percent of the measurements. For the MRL-MS samples, aldrin, alpha-BHC, beta-BHC, lindane, delta-BHC, heptachlor and heptachlor epoxide had acceptable recoveries in over 75% of the samples analyzed. All other spiked compounds exhibited recoveries outside of the control limits in over 25percent of the MRL-MS samples analyzed. Since the pesticide verification study indicated unacceptable accuracy for 7 of the 16 compounds evaluated (endosulfan I, endosulfan II, toxaphene and chlordane were not included in the evaluation) the recommendation is to use standard method procedures and reporting limits.

For the PCB evaluation, the accuracy of the MRL-LCS samples was within the control limits established by LLI for 87.5 percent of the measurements. For the MRL-MS, 11 of the 22 samples had recoveries outside of the control limits. Aroclors including 1248, 1254, 1260, and PCT 5460 were reported above the detection limit in 16 of the 22 MRL-MS samples. The presence of these aroclors in these samples caused unacceptable accuracy and precision levels that did not meet program requirements. `

The recoveries for the RL-MS samples was significantly affected by interfering Aroclor mixtures detected in the native samples, predominantly for the spiked Aroclor 1260. Accuracy and precision was also affected significantly when multiple Aroclors were present in the un-spiked sample used for the MRL-MS. When this occurred, LLI identified specific peaks for each Aroclor as the identification and quantitation peaks. This is based on the major congener peaks in the Aroclor pattern and distinguishing (unique) peaks for that Aroclor. Further, the LLI SOP states that at least 3 to 6 peaks may be used for quantitation, and a choice of which peaks are used may be necessary when there are mixtures of Aroclors present. Since each sample can present a unique situation with regard to the actual Aroclor(s) present along with other peaks native to the sample matrix, it is

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difficult to outline one procedure to use when confronted by a sample with multiple Aroclors. This approach is consistent with method 8082.

5.0 Laboratory-Specific Method Modification and Adjustment Details

The following section describes the details of each laboratory's method modifications for Phases 1 and 2 and the adjustments that were required to reconcile the Phases 1 and 2 herbicide, pesticide and PCB data MRLs to the verified Phase 3 MRL values.

In general, modifications to the methods were accomplished by increasing the mass of soil extracted and decreasing the volume of the final extract. Preparation factors vary between the two laboratories because each laboratory adjusted the sample extraction mass and extract final volumes by different levels to achieve project specific MRL goals.

EMAX also performed a further adjustment by modifying the initial calibration concentration levels to detect lower limits and minimize the amount of preparation modification needed to meet the requested lower limits. These adjustments to initial calibrations (EMAX), extraction mass and extract final volumes were determined based on laboratory-specific sensitivity of the instruments used, initial calibration lower limit points and the laboratories internal MDL studies.

The laboratory-specific method modification details are provided in the following sections.

Lancaster Laboratories Inc.

Phase 1 and Phase 2

Herbicides and PCBs:

LLI provided the preparation factor used for the modified method in an email dated May 22, 2013. The soil preparations for the Phase 1 and Phase 2 work started with 60 grams (mass soil extracted) of soil and ended with a final volume of 2 mL of extract for a factor of 10 from the normal 30 grams to 10 mls final volume (i.e., preparation factor of 30, based on a ratio of 60/2).

Pesticides:

LLI provided the preparation factor used for the modified method in an email dated August 6, 2013. The soil preparations for the Phase 1 and Phase 2 work started with 60 grams (mass soil extracted) of soil to 10 mls and then they performed GPC of 5 mls to 2 ml final volume (i.e., preparation factor of 15, based on a ratio of (60/10*5/2). Phase 3

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Herbicides and PCBs:

LLI also provided the preparation factor for the unmodified method in the same email dated May 22, 2013. The current preparation factor for the Phase 3 work is 30 grams to 10 mL (i.e., preparation factor of 3, based on a ratio of 30/10).

Pesticides:

LLI also provided the preparation factor for the unmodified method in the same email dated August 6, 2013. The current preparation factor for the Phase 3 work is 30 grams to 10 mL with a GPC step of 5 mLs to 5 mL final volume (i.e., preparation factor of 3, based on a ratio of (30/10*5/5).

LLI Adjustment Factor Application

Herbicides and PCBs:

An adjustment factor of 10 (based on preparation factor ratio of 30/3) is therefore required to reconcile the Phases 1 and 2 herbicide MRLs to the Phase 3 data. The adjustment factor is calculated as follows:

Adjustment Factor = Phases 1 and 2 Preparation Factor/Phase 3 Preparation Factor

The adjusted MRLs are calculated as follows:

Adjusted MRL = Phases 1 and 2 MRLs * Adjustment Factor

For example, for herbicide analyte 2,4,5-T, applying an adjustment factor of 10 to the modified MRL of 0.17 microgram per kilogram (µg/kg) would result in an associated laboratory standard MRL of 1.7 µg/kg.

In summary the LLI herbicides (Method 8151A) and PCBs (Method 8082A) Phase 1 and Phase 2 MRLs should be multiplied by 10 to adjust them to the Phase 3 MRL levels.

Pesticides:

An adjustment factor of 5 (based on preparation factor ratio of 15/3) is therefore required to reconcile the Phases 1 and 2 pesticide MRLs to the Phase 3 data. The adjustment factor is calculated as follows:

Adjustment Factor = Phases 1 and 2 Preparation Factor/Phase 3 Preparation Factor

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The adjusted MRLs are calculated as follows:

Adjusted MRL = Phases 1 and 2 MRLs * Adjustment Factor

For example, for pesticide analyte Alpha BHC, applying an adjustment factor of 5 to the modified MRL of 0.17 microgram per kilogram (µg/kg) would result in an associated laboratory standard MRL of 0.85 µg/kg.

In summary the LLI pesticides (Method 8081B) Phase 1 and Phase 2 MRLs should be multiplied by 5 to adjust them to the Phase 3 MRL levels.**EMAX Laboratories Inc.**

Phase 1 and Phase 2

Herbicides, Pesticides and PCBs:

EMAX followed a similar convention to lower their standard MRLs to try to meet the project-specific MRL goals. EMAX provided the preparation factors for the modified method in an email dated May 21, 2013 (and subsequent follow up confirmation emails); the soil preparation factor for the Phase 2work (the only phase they participated in) was 20 grams to 5 mL for herbicides and 30 grams to 4 mL for PCBs and pesticides. As an extra step, EMAX also modified the initial calibration concentration levels and performed MDL studies on a clean sand matrix (Ottawa sand) to achieve and verify the requested low levels. The EMAX 7-point soil MDL study was performed in September 2011 and used to establish the precision of the MDLs. In addition to the MDL study, EMAX performed LOQ verifications quarterly. An LOQ is another measure of identifying the lowest concentration that can be reliably achieved within specific limits of precision and accuracy during routine laboratory operating conditions. LOQs are normally set rather than systematically determined through processes at the laboratory level.

Herbicides:

The MDL study and the LOQ verifications for herbicides were performed using the modified preparation of 20 grams to 5 ml. Attachment B provides the modified preparation, results of the MDL study, and the LOQ verifications. The precision of these low level MDLs for all analytes was not proven as shown in Table 6 where six out of ten analytes had calculated MDLs that were greater than 1/10 the spike level as discussed previously. The interferences associated with site soils would also increase the lack of precision for low level MDLs. These modifications and results of the EMAX MDL LOQ studies for Low Level Method 8151 Soil are shown in Attachment B.

Pesticides:

The MDL study and the LOQ verifications for pesticides were performed using the modified preparation of 30 grams to 4 ml. Attachment B provides the modified preparation, results of the

MDL study, and the LOQ verifications. The precision of these low level MDLs for all analytes was not proven as shown in Table 6 where six out of ten analytes had calculated MDLs that were greater than 1/10 the spike level as discussed previously. The interferences associated with site soils would also increase the lack of precision for low level MDLs. These modifications and results of the EMAX MDL LOQ studies for Low Level Method 8081X Soil are shown in Attachment B.

PCBs:

The MDL study and the LOQ verifications for PCBs were performed using the modified preparation of 30 grams to 4 ml. Attachment B provides the modified preparation, results of the MDL study, and the LOQ verifications. The precision of these low level MDLs for all analytes was not proven as shown in Table 6 where six out of ten analytes had calculated MDLs that were greater than 1/10 the spike level as discussed previously. The interferences associated with site soils would also increase the lack of precision for low level MDLs. These modifications and results of the EMAX MDL LOQ studies for Low Level Method 8082X Soil are shown in Attachment B.Phase 3

Herbicides:

EMAX provided the preparation factor for the unmodified method in the same email dated May 21, 2013. The preparation factor for the Phase 3 work is 10 grams to 5 mL for herbicides.

Pesticides and PCBs:

EMAX provided the preparation factor for the unmodified methods in the same email dated May 21, 2013. The preparation factor for the Phase 3 work is 30 grams to 10 mL for pesticides and PCBs.

EMAX Adjustment Factor Application

Herbicides:

Because EMAX modified the initial calibration concentration levels as well as the preparation factors to achieve the lower limits, this resulted in each herbicide analyte having a specific adjustment factor. These unique adjustment factors are shown in the last column of Table 5a. These analyte specific adjustment factors are required to reconcile the Phases 1 and 2 MRLs for herbicides to the Phase 3 data. The adjustment factors are calculated as follows:

Adjustment Factor = Phase 3 MRL/Phases1 and 2 MRL

The adjusted MRLs are calculated as follows:

Adjusted MRL = Phases 1 and 2 individual MRLs * Individual Adjustment Factors

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For example, for herbicide analyte 2,4,5-T, applying an adjustment factor of 58.824 to the modified MRL of 0.17 µg/kg would result in an associated laboratory standard MRL of 10.00 µg/kg.

In summary, the EMAX herbicides (Method 8151A) Phase 1 and Phase 2 MRLs should be multiplied by the analyte-specific adjustment factor shown in Table 5a to adjust them to the Phase 3 MRL levels.

Pesticides:

Because EMAX modified the initial calibration concentration levels as well as the preparation factors to achieve the lower limits, this resulted in each pesticide analyte having a specific adjustment factor. These unique adjustment factors are shown in the last column of Table 5b. These analyte specific adjustment factors are required to reconcile the Phases 1 and 2 MRLs for pesticides to the Phase 3 data. The adjustment factors are calculated as follows:

Adjustment Factor = Phase 3 MRL/Phases1 and 2 MRL

The adjusted MRLs are calculated as follows:

Adjusted MRL = Phases 1 and 2 individual MRLs * Individual Adjustment Factors

For example, for pesticide analyte Alpha-BHC, applying an adjustment factor of 11.76 to the modified MRL of 0.17µg/kg would result in an associated laboratory standard MRL of 1.999 µg/kg.

In summary, the EMAX pesticides (Method 8081X) Phase 1 and Phase 2 MRLs should be multiplied by the analyte-specific adjustment factor shown in Table 5b to adjust them to the Phase 3 MRL levels.

PCBs:

Because EMAX modified the initial calibration concentration levels as well as the preparation factors to achieve the lower limits, this resulted in each PCB analyte having a specific adjustment factor. These unique adjustment factors are shown in the last column of Table 5c. These analyte specific adjustment factors are required to reconcile the Phases 1 and 2 MRLs for PCBs to the Phase 3 data. The adjustment factors are calculated as follows:

Adjustment Factor = Phase 3 MRL/Phases1 and 2 MRL

The adjusted MRLs are calculated as follows:

Adjusted MRL = Phases 1 and 2 individual MRLs * Individual Adjustment Factors

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For example, for pesticide analyte Alpha-BHC, applying an adjustment factor of 11.76 to the modified MRL of 1.7µg/kg would result in an associated laboratory standard MRL of 19.92 µg/kg.

Another nuance of EMAX PCB reporting was also evaluated. In the calibrations, EMAX assigned 1/5 of the spike value to each of the five selected peaks and then calculates the calibration factor based on these results. Therefore, the five peaks are summed up to equal the total concentration. The samples are quantitated consistent with the calibration. Specifically, the sum of the five peaks is equivalent to the total concentration. This is the same as in the calibration. No averaging is needed and the group result (sum of the five peaks) would only need to be adjusted by the extraction/prep factor (0.13 Phase 1 and 2 or 0.33 Phase 3) and the moisture content. In the event that multiple aroclors are detected in on sample with co-eluting quantitation peaks, the peak that is affected is eliminated for quantitation purposed.

In summary, the EMAX PCBs (Method 8082X) Phase 1 and Phase 2 MRLs should be multiplied by the analyte-specific adjustment factor shown in Table 5c to adjust them to the Phase 3 MRL levels.

6.0 Verification and Demonstration of Adjustment Factors

Two comparisons were performed to verify and demonstrate the adjustment factors for the modified method MRLs and the unmodified method MRLs for both LLI and EMAX.

One comparison involved reviewing the method blank site-specific herbicide, pesticide and PCB data that had been analyzed with the modified method and comparing it to non-site-specific method blank herbicide, pesticide and PCB data that the laboratory had analyzed in the same time frame by the unmodified method. A method blank is a portion of analyte-free water or soil of the same volume or weight as that used for the routine sample preparation. Surrogates and other monitoring compounds are added to the method blank which is then taken through the entire sample processing procedure just as if it was a regular sample. Method blanks are subjected to all sample preparation procedures performed on any one sample such as the fluorisil cleanup discussed previously. Method blanks help monitor possible sources of contamination in a laboratory through sample preparation and analysis.

Tables 4a, 4b, and 4c show the MRL comparisons for LLI's method blanks for Phase 1 and Phase 2 (using modified method) and Phase 3 (using unmodified method). This demonstrates and verifies how LLI's adjustment factor was applied to site specific data and non-site specific data.

As stated previously the adjustment factors for EMAX are analyte-specific and involved not only a modified preparation factor but also an adjustment to the initial calibration concentration levels. Based on this scenario a method blank comparison was only evaluated for site-specific samples as

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shown on Tables 5a, 5b and 5c. Tables 5a, 5b, and 5c show EMAX's method blanks for Phase 1 and Phase 2 (using modified method) and Phase 3 (using unmodified method).

The second comparison involved review of site-specific method blank samples from Phase 1 (modified method) against site-specific method blank samples from Phase 3 (unmodified method). These comparisons of LLI data are also shown in Tables 4a, 4b, and 4c (two "site specific" columns). LLI's adjustment factor of 10 and 5 can be verified from comparison of the modified method results to the unmodified method results (e.g., herbicide analyte dalapon had a modified MRL of 9 µg/kg and an unmodified MRL of 90 µg/kg).

For EMAX, Tables 5a, 5b and 5c show the difference in the factor of the site-specific method blanks for each analyte in Phases 1 and 2 and Phase 3. Each analyte has a specific adjustment factor (last column in the table) to convert the modified MRL to the unmodified MRL as shown by Phase 3 site-specific method blanks (e.g., herbicide analyte dalapon had a modified MRL of 9 µg/kg and the unmodified MRL is 10 µg/kg (i.e., 9*1.111)). The adjustment factors are for MRLs only in samples that are non-detect only. Because some results were reported below the MRL but above the MDL (qualified estimated "J") MDLs will not be adjusted. If MDLs are adjusted, a separate adjustment factor will be calculated.

Along with the laboratory method blank documentation, additional backup information has been provided by the laboratories to verify and demonstrate the modified method procedures and to justify the required adjustment of data based on the conclusions of this memorandum. This backup information is provided in the following attachments:

- Attachment A, Part 1, MDL Test Data, provides the herbicide target compound spike concentrations in the sample, amount measured, and calculated recovery in each of the three LLI MDL studies. This attachment also shows the average recovery per individual MDL test and the average recovery per the three MDL tests combined.
- Attachment A, Part 2, Data Table, provides all the raw herbicide data from LLI. This includes all seven MDL test trials and statistical analyses. Data in Attachment A, Part 2 used in Tables 1 through 3 are color coded to show their relation to specific tables.
- Attachment B provides EMAX's laboratory back up documentation of their study results.
- Attachment C presents email documentation and laboratory raw data results.
- Attachment D provides the documentation for the pesticide LCS and MS study results
- Attachment E provides the documentation for the PCB LCS and MS study results

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7.0 Recommendations

Based on evaluation of the herbicide method verification study results described above and presented in Tables 1 and 2, the following recommendations are made for the DOE analytical program:

1. Utilize standard SW-846 herbicide, pesticide and PCB methods without modifications in future DOE sampling/analysis efforts. The herbicide method verification study indicated unacceptable MDL results for six of the ten target compounds. This is based on the mathematically adjusted MDLs determined during this study that exceeded the reported "J" value (calculated MDLs) used during Phase 1 and Phase 2, Attachment A Part 2. In summary, modified method procedures led to results that did not achieve MDLs as the "minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte." The mathematically adjusted MDLs were based on a clean matrix (Ottawa sand). Modified method procedures using site soils would not be expected to achieve MDL definition due to increased interferences. Use of unmodified methods and method reporting limits allows the program to utilize multiple laboratories that can demonstrate acceptable MDL results.

2. Elevate the Phase 1 and Phase 2 herbicide, pesticide and PCB MRLs to the associated laboratory's unmodified MRL. Detected results from Phases 1 and 2 will not change, but will be qualified as estimated "J" values if the result is below the associated laboratory's standard MRLs. Non-detect results will be elevated to the new MRLs with "U" qualifier. A "Y" qualifier will be added to all Phases 1 and 2 sample results for herbicides, pesticides and PCBs to indicate the adjustment to the MRLs. Because results that were originally detected between the MDL and the MRL were qualified as estimated "J", the MDLs will not change.

3. Verify modified methods for other representative organic chemicals. This has been done for the latter portion of the Phase 1 co-located sampling program, 20 low-level LCS results for polychlorinated biphenyls (PCBs), and 9 low-level pesticides.

4. Include a low-level MS and LCS QC program for all sample batches if modified methods are desired for future DOE sampling programs.

In summary, LLI initially mathematically adjusted their unmodified MDL values to lower level (modified) MDL values. These low level MDLs could not be verified with the May 2011 MDL study and/or the method verification study. Both MDL studies were performed with a clean matrix (Ottawa sand); this is routine but does not address the site soil interferences that would further decrease the precision of low level MDLs. The analyses of a limited number of low level spike samples were performed too late in the process of sample analyses to validate the non-detect

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sample results. Without the known impacts of interferences caused by site soils and confirmation of low level MDLs by low level spikes, the mathematical adjustment made to the MRLs could not be verified.

EMAX demonstrated a lower MRL value in a clean matrix using a modified preparation factor and modified calibration concentration levels in their MDL study. EMAX was able to achieve the lower limits through statistical analyses with a clean matrix, however, these low limits were not verified in the site soil matrices and calculated MDL values were also than a ratio of 1:10 of the spike level in six out of ten compounds.

For both laboratories, the lines of evidence to verify the low level MRLs such as the laboratory-specific MDL studies and limited low level spikes results could not substantiate the precision of the low level MRLs in the site's soil matrix and potential interferences. The adjustment factors discussed in Section 4 have been mathematically confirmed between the Phases 1 and 2 data and Phase 3 data and have been used to convert the low level MRLs to the appropriate standard MRLs required for site-specific data and for all future analyses.

cc: John Jones, DOE
Stephanie Jennings, DOE

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Table 1 - Summary of Method Detection Limit Results - Herbicides

Compound	Units	Method Detection Limit - Test 1	Method Detection Limit - Test 2	Method Detection Limit - Test 3	Method Detection Limit - 21 Point	Phase 1 Modified Co-located Method Reporting Limit	Phase 1 Modified Co-located Method Detection Limit
2,4,5-T	ug/kg	0.0432	0.0337	0.0444	0.0854	0.17	0.082
2,4,5-TP	ug/kg	0.0240	0.0577	0.116	0.1106	0.17	0.075
2,4-D	ug/kg	0.2739	0.6652	0.5258	1.0656	3.6	1.2
2,4-DB	ug/kg	0.4173	0.5122	0.3942	0.5303	1.7	0.62
2,4-DP	ug/kg	1.8165	0.6722	0.7917	1.7768	1.7	0.8
Dalapon	ug/kg	0.9709	0.9537	1.3235	1.8543	9	4.4
Dicamba	ug/kg	0.2036	0.0745	0.1237	0.1529	1.2	0.4
Dinoseb	ug/kg	0.4212	1.7082	1.1634	1.3268	2.4	0.8
MCPA	ug/kg	107.4258	122.2933	52.4746	96.0340	250	76
MCPP	ug/kg	315.1295	634.2651	211.2401	379.7152	250	75

Notes:

Value exceeds the Phase 1 MDL

Value exceeds the Phase 1 MDL and MRL

MDL = Method Detection Limit is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

MDL 21 Point = Laboratory processed 21 replicate spikes to evaluate method accuracy and precision recoveries and relative standard deviations

ug/kg = microgram per kilogram

2,4,5-T = 2,4,5-Trichlorophenoxyacetic Acid

2,4,5-TP = Silvex (2,4,5-Trichlorophenoxyacetic acid)

2,4-D = Dichlorophenoxyacetic Acid

2,4-DB = 4-(2,4-dichlorophenoxy)butanoic acid

2,4-DP = Dichloroprop

MCPA = 2-Methyl-4-Chlorophenoxyacetic Acid

MCPP = Methylchlorophenoxyproprionic Acid

PCP = Pentachlorophenol

Laboratory Conducting the Study = Lancaster Laboratories Inc.

Analytical Method = Method 8151A

Study Dates = 8/22/11, 8/24/11, and 8/29/11

Media = Ottowa Sand

Table 2 - Accuracy and Precision of MDL Tests

Compound	MDL Test 1	MDL Test 2	MDL Test 3	MDL 21 Point	Method 8151 Precision Data *
	RSD	RSD	RSD	RSD	RSD
2,4,5-T	5.6	6.1	7.6	16.8	7.3
2,4,5-TP	3.6	14.7	19.5	25.0	5.7
2,4-D	3.2	12.1	7.8	19.2	5.3
2,4-DB	5.5	7.9	5.9	9.5	7.6
2,4-DP	15.3	8.4	9.9	23.8	5
Dalapon	6.3	6.3	12	16.7	--
Dicamba	19.8	8.2	10.1	18.1	7.5
Dinoseb	27.6	46.7	27.8	52.8	8.7
MCPA	15.2	20.9	9.8	19.6	5.3
MCPP	27.6	63.3	36.2	52.0	3.4

Notes:
MDL = Method Detection Limit
RSD = Relative Standard Deviation
2,4,5-T = 2,4,5-Trichlorophenoxyacetic Acid
2,4,5-TP = Silvex (2,4,5-Trichlorophenoxyacetic acid)
2,4-D = Dichlorophenoxyacetic Acid
2,4-DB = 4-(2,4-dichlorophenoxy)butanoic acid
2,4-DP = Dichloroprop
MCPA = 2-Methyl-4-Chlorophenoxyacetic Acid
MCPP = Methylchlorophenoxyproprionic Acid
PCP = Pentachlorophenol
Laboratory Conducting the Study = Lancaster Laboratories Inc.
Analytical Method = Method 8151A
Study Dates = 8/22/11, 8/24/11, and 8/29/11
Media = Ottowa Sand
* - Values obtained from SW-846 Method 8151A Table 5 (provided in backup documentation)

Table 3 - Modified Reporting Limit Comparisons

Compound	Units	Highest of individual MDL tests	MDL 21 Point	LLI Phase 1 Modified Herbicide MDL (J Value Limit from Data Table[1])	LLI Phase 1 Modified Method Reporting Limit (Reported LOQ Value from Data Table[1])
2,4,5-T	ug/kg	0.044	0.085	0.082	0.170
2,4,5-TP	ug/kg	0.116	0.111	0.075	0.170
2,4-D	ug/kg	0.665	1.066	1.200	3.600
2,4-DB	ug/kg	0.512	0.530	0.620	1.700
2,4-DP	ug/kg	1.817	1.777	0.800	1.700
Dalapon	ug/kg	1.324	1.854	4.400	9.000
Dicamba	ug/kg	0.204	0.153	0.400	1.200
Dinoseb	ug/kg	1.708	1.327	0.800	2.400
MCPA	ug/kg	122.290	96.034	76.000	250.000
MCPP	ug/kg	634.265	379.715	75.000	250.000

Notes:

Value exceeds the LLI Phase 1 Modified Herbicide MDL. This value was derived by dividing the standard MDL by 10 to achieve the method modification.

Value exceeds the LLI Phase 1 Modified Herbicide MRL. This value was derived by dividing the standard MRL by 10 to achieve the method modification.

[1] = See Attachment A, Part 2
ug/kg = microgram per kilogram
MDL = Method Detection Limit
MDL 21 Point = Laboratory processed 21 replicate spikes to evaluate method accuracy and precision recoveries and relative standard deviations
LLI = Lancaster Laboratories Inc.
MRL = Method Reporting Limit
J = The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
2,4,5-T = 2,4,5-Trichlorophenoxyacetic Acid
2,4,5-TP = Silvex (2,4,5-Trichlorophenoxyacetic acid)
2,4-D = Dichlorophenoxyacetic Acid
2,4-DB = 4-(2,4-dichlorophenoxy)butanoic acid
2,4-DP = Dichloroprop
MCPA = 2-Methyl-4-Chlorophenoxyacetic Acid
MCPP = Methylchlorophenoxyproprionic Acid
PCP = Pentachlorophenol
Laboratory Conducting the Study = Lancaster Laboratories Inc.
Analytical Method = Method 8151A
Study Dates = 8/22/11, 8/24/11, and 8/29/11
Media = Ottowa Sand

Table 4a - Herbicide Method Blank Reporting Limit Results Comparisons (site to non site and Phase 1 to Phase 3)

Analyte	Units	Modified Method		Standard Method			
		Lancaster Site Specific Method Blank Result SDG: DE093 3/12/2011 [2] Phase 1		Lancaster Non Site Specific Method Blank Result SDG: DMS01 3/25/2011 [2] [3]		Lancaster Site Specific Method Blank Result SDG: PH067 7/19/2013 Phase 3	
		MRL [1]	MDL [1]	MRL	MDL	MRL	MDL
2,4,5-T	ug/kg	0.170	0.082	1.700	0.820	1.700	0.820
2,4,5-TP	ug/kg	0.170	0.075	1.700	0.750	1.700	0.750
2,4-D	ug/kg	3.600	1.200	36.000	12.000	36.000	12.000
2,4-DB	ug/kg	1.700	0.620	17.000	6.200	17.000	6.200
2,4-DP	ug/kg	1.700	0.800	17.000	8.000	17.000	9.000
Dalapon	ug/kg	9.000	4.400	90.000	44.000	90.000	44.000
Dicamba	ug/kg	1.200	0.400	12.000	4.000	12.000	4.000
Dinoseb	ug/kg	2.400	0.800	24.000	8.000	24.000	9.000
MCPA	ug/kg	250.000	76.000	2500.000	760.000	2500.000	760.000
MCPP	ug/kg	250.000	75.000	2500.000	750.000	2500.000	750.000

Notes:

2,4,5-T = 2,4,5-Trichlorophenoxyacetic Acid

2,4,5-TP = Silvex (2,4,5-Trichlorophenoxyacetic acid)

2,4-D = Dichlorophenoxyacetic Acid

2,4-DB = 4-(2,4-dichlorophenoxy)butanoic acid

2,4-DP = Dichloroprop

MCPA = 2-Methyl-4-Chlorophenoxyacetic Acid

MCPP = Methylchlorophenoxyproprionic Acid

ug/kg = microgram per kilogram

MRL = Method Reporting Limit lowest concentration at which an analyte can be confidently detected in a sample and its concentration can be reported with a reasonable degree of accuracy and precision.

MDL = Method Detection Limit the minimum concentration that can be measured and reported with a 99 percent confidence that the concentration is greater than 0, but the exact concentration cannot be reliably quantified.

SDG = Sample Delivery Group

1) The MDL and MRL reflect the preparation factor 60 grams/2mL (eg. 30). The adjustment factor ratio of Phase 1 to Phase 3 preparation factors was 10.

2) The samples were being analyzed during the first phase of site work in 2011.

3) The MDL and MRL reflect the standard preparation factor used by Lancaster Laboratories for all other projects at the same time frame that SSFL samples were being analyzed with the modified method and associated modified preparation factor.

Table 4b - Pesticide Method Blank Reporting Limit Results Comparisons (site to non site and Phase 1 to Phase 3)

Analyte	Units	Modified Method		Standard Method			
		Lancaster Site Specific Method Blank Result SDG: DE256 10/11/2011 [2] Phase 1		Lancaster Non Site Specific Method Blank Result SDG: PH046 6/20/2013 [2] [3]		Lancaster Site Specific Method Blank Result SDG: PH046 6/20/2013 Phase 3	
		MRL [1]	MDL [1]	MRL	MDL	MRL	MDL
Alpha BHC	ug/kg	0.170	0.034	0.830	0.170	0.830	0.170
Gamma BHC - Lindane	ug/kg	0.170	0.034	0.830	0.170	0.830	0.170
Beta BHC	ug/kg	0.170	0.060	0.830	0.300	1.900	0.960
Delta BHC	ug/kg	0.170	0.036	0.830	0.180	0.830	0.450
Heptachlor	ug/kg	0.170	0.060	0.830	0.300	0.830	0.170
Aldrin	ug/kg	0.170	0.066	0.830	0.330	0.830	0.170
Heptachlor Epoxide	ug/kg	0.170	0.034	0.830	0.170	0.830	0.170
p,p-DDE	ug/kg	0.340	0.066	1.700	0.330	1.700	0.330
Endosulfan I	ug/kg	0.170	0.044	0.830	0.220	0.830	0.220
Dieldrin	ug/kg	0.340	0.066	1.700	0.330	1.700	0.330
Endrin	ug/kg	0.340	0.066	1.700	0.330	1.700	0.330
p,p-DDD	ug/kg	0.340	0.066	1.700	0.330	1.700	0.330
Endosulfan II	ug/kg	0.340	0.066	1.700	0.330	1.700	0.330
p,p-DDT	ug/kg	0.340	0.066	1.700	0.330	1.700	0.350
Endrin Aldehyde	ug/kg	0.340	0.066	1.700	0.330	1.700	0.330
Methyoxychlor	ug/kg	1.700	0.340	8.300	1.700	6.700	1.700
Endosulfan Sulfate	ug/kg	0.340	0.066	1.700	0.330	1.700	0.330
Mirex	ug/kg	0.340	0.066	1.700	0.330	1.700	0.350
Endrin Ketone	ug/kg	0.340	0.066	1.700	0.330	1.800	0.600
Chlordane	ug/kg	3.400	0.800	1.700	4.000	17.000	4.000
Toxaphene	ug/kg	6.600	2.200	33.000	11.000	33.000	14.000

Notes:

BHC = beta-hexachlorocyclohexane

DDE = dichlorodiphenyldichloroethylene

DDD = dichlorodiphenyldichloroethylene

DDT = dichlorodiphenyltrichloroethane

ug/kg = microgram per kilogram

MRL = Method Reporting Limit lowest concentration at which an analyte can be confidently detected in a sample and its concentration can be reported with a reasonable degree of accuracy and precision.

MDL = Method Detection Limit the minimum concentration that can be measured and reported with a 99 percent confidence that the concentration is greater than 0, but the exact concentration cannot be reliably quantified.

SDG = Sample Delivery Group

1) The MDL and MRL reflect the preparation factor 60 grams/10mL - GPC of 5ml to 2 ml final volume for a factor 5 of the normal 30g/10 ml with GPC of 5 ml to 5ml final volume. The adjustment factor ratio of Phase 1 to Phase 3 preparation factors was 5.

2) The samples were being analyzed during the first phase of site work in 2011.

3) The MDL and MRL reflect the standard preparation factor used by Lancaster Laboratories for all other projects at the same time frame that SSFL samples were being analyzed with the modified method and associated modified preparation factor.

Table 4c - PCB Method Blank Reporting Limit Results Comparisons (site to non site and Phase 1 to Phase 3)

Analyte	Units	Modified Method		Standard Method			
		Lancaster Site Specific Method Blank Result SDG: DE216 8/18/2011 [2] Phase 1		Lancaster Non Site Specific Method Blank Result SDG: PH046 6/20/2013 [2] [3]		Lancaster Site Specific Method Blank Result SDG: PH046 6/10/2013 Phase 3	
		MRL [1]	MDL [1]	MRL	MDL	MRL	MDL
PCB-1016	ug/kg	1.700	0.330	17.000	3.300	17.000	3.300
PCB-1221	ug/kg	1.700	0.330	17.000	3.300	17.000	5.100
PCB-1232	ug/kg	1.700	0.330	17.000	3.300	17.000	4.100
PCB-1242	ug/kg	1.700	0.330	17.000	3.300	17.000	4.100
PCB-1248	ug/kg	1.700	0.330	17.000	3.300	17.000	3.300
PCB-1254	ug/kg	1.700	0.330	17.000	3.300	17.000	4.400
PCB-1260	ug/kg	1.700	0.390	17.000	3.900	17.000	3.900
PCB-1262	ug/kg	1.700	0.330	17.000	3.300	17.000	3.300
PCB-1268	ug/kg	1.700	0.330	17.000	3.300	17.000	3.300
Aroclor-5432	ug/kg	3.300	1.000	NA	NA	33.000	10.000
Aroclor-5442	ug/kg	3.300	1.000	NA	NA	33.000	10.000
Aroclor-5460	ug/kg	3.300	1.000	NA	NA	33.000	10.000

Notes:

PCB = polychlorinated biphenyl

ug/kg = microgram per kilogram

NA = No non site specific method blanks were analyzed for Aroclor-5432, Aroclor-5442, and Aroclor-5460 during this time period.

MRL = Method Reporting Limit lowest concentration at which an analyte can be confidently detected in a sample and its concentration can be reported with a reasonable degree of accuracy and precision.

MDL = Method Detection Limit the minimum concentration that can be measured and reported with a 99 percent confidence that the concentration is greater than 0, but the exact concentration cannot be reliably quantified.

SDG = Sample Delivery Group

1) The MDL and MRL reflect the preparation factor 60 grams/2mL (eg. 30). The adjustment factor ratio of Phase 1 to Phase 3 preparation factors was 10.

2) The samples were being analyzed during the first phase of site work in 2011.

3) The MDL and MRL reflect the standard preparation factor used by Lancaster Laboratories for all other projects at the same time frame that SSFL samples were being analyzed with the modified method and associated modified preparation factor.

Table 5a - EMAX Herbicide MRL Comparisons based on Method Blank Reporting Limit Results (Phase 1 to Phase 3 Site Data)

Analyte	Units	Modified Method		Standard Method		Factors to adjust Phase 1 and 2 MRLs
		Phases 1 and 2 MRL (from site specific blank): Method Blank Result SDG 12C182 3/26/12		Phase 3 MRL (from site specific blank): Method Blank Result SDG 12F037 6/11/12		Factor Difference (Phase 3 MRL/Phases 1 and 2 MRL)
		MRL [1]	MDL [1]	MRL [2]	MDL [2]	MRL [1]
2,4-D	µg/kg	3.600	1.800	10.000	5.000	2.778
2,4-DB	µg/kg	1.700	0.850	10.000	5.000	5.882
2,4,5-T	µg/kg	0.170	0.085	10.000	5.000	58.824
2,4,5-TP (Silvex)	µg/kg	0.170	0.085	10.000	5.000	58.824
Dalapon	µg/kg	9.000	4.500	10.000	5.000	1.111
Dicamba	µg/kg	1.200	0.600	10.000	5.000	8.333
Dichloroprop (2,4-DP)	µg/kg	2.400	1.200	10.000	5.000	4.167
Dinoseb	µg/kg	1.700	0.850	10.000	5.000	5.882
MCPA	µg/kg	250.000	120.000	2000.000	1000.000	8.000
MCPP	µg/kg	250.000	120.000	2000.000	1000.000	8.000

Notes:

2,4-D = Dichlorophenoxyacetic Acid

2,4-DB = 4-(2,4-dichlorophenoxy)butanoic acid

2,4,5-T = 2,4,5-Trichlorophenoxyacetic Acid

2,4,5-TP = Silvex (2,4,5-Trichlorophenoxyacetic acid)

2,4-DP = Dichloroprop

MCPA = 2-Methyl-4-Chlorophenoxyacetic Acid

MCPP = Methylchlorophenoxyproprionic Acid

ug/kg = microgram per kilogram

MRL = Method Reporting Limit lowest concentration at which an analyte can be confidently detected in a sample and its concentration can be reported with a reasonable degree of accuracy and precision.

MDL = Method Detection Limit the minimum concentration that can be measured and reported with a 99 percent confidence that the concentration is greater than 0, but the exact concentration cannot be reliably quantified.

SDG = Sample Delivery Group

1) The MDL and MRL reflect the preparation factor 20 grams/5mL (eg. 4). The adjustment factor ratio of Phase 1 to Phase 3 preparation factor is analyte specific as shown in the "Factors to adjust Phase 1 and 2 MRLs" column.

2) The MDL and MRL reflect the standard preparation factor used by EMAX for the SSFL Phase 3 samples.

3) The soil used for the modified method and standard method blanks was Ottawa sand.

Table 5b - EMAX Pesticide MRL Comparisons based on Method Blank Reporting Limit Results (Phase 1 to Phase 3 Site Data)

Analyte	Units	Modified Method		Standard Method		Factors to adjust Phase 1 and 2 MRLs
		Phases 1 and 2 MRL (from site specific blank): Method Blank Result SDG 12C305 4/17/12		Phase 3 MRL (from site specific blank): Method Blank Result SDG 12F037 6/11/12		Factor Difference (Phase 3 MRL/Phases 1 and 2 MRL)
		MRL [1]	MDL [1]	MRL [2]	MDL [2]	MRL [1]
Alpha-BHC	µg/kg	0.170	0.085	2.000	0.400	11.765
Gamma-BHC (Lindane)	µg/kg	0.170	0.085	2.000	0.400	11.765
Beta-BHC	µg/kg	0.170	0.085	2.000	0.400	11.765
Heptachlor	µg/kg	0.170	0.085	2.000	0.400	11.765
Delta-BHC	µg/kg	0.170	0.085	2.000	0.400	11.765
Aldrin	µg/kg	0.170	0.085	2.000	0.400	11.765
Heptachlor Epoxide	µg/kg	0.170	0.085	2.000	0.400	11.765
Endosulfan I	µg/kg	0.170	0.085	2.000	0.400	11.765
4,4'-DDE	µg/kg	0.340	0.170	2.000	0.400	5.882
Dieldrin	µg/kg	0.340	0.170	2.000	0.400	5.882
Endrin	µg/kg	0.340	0.170	2.000	0.400	5.882
4,4'-DDD	µg/kg	0.340	0.170	2.000	0.400	5.882
Endosulfan II	µg/kg	0.340	0.170	2.000	0.400	5.882
4,4-DDT	µg/kg	0.340	0.170	2.000	0.400	5.882
Endrin Aldehyde	µg/kg	0.340	0.170	2.000	0.400	5.882
Endosulfan Sulfate	µg/kg	0.340	0.170	2.000	0.400	5.882
Endrin Ketone	µg/kg	0.340	0.170	2.000	0.400	5.882
Methoxychlor	µg/kg	1.700	0.850	5.000	2.000	2.941
Mirex	µg/kg	0.340	1.700	2.000	0.400	5.882
Toxaphene	µg/kg	6.600	3.300	50.000	10.000	7.576
Chlordane (Technical)	µg/kg	3.400	1.700	10.000	5.000	2.941

Notes:

BHC = beta-hexachlorocyclohexane

DDE = dichlorodiphenyldichloroethylene

DDD = dichlorodiphenyldichloroethylene

DDT = dichlorodiphenyltrichloroethane

ug/kg = microgram per kilogram

MRL = Method Reporting Limit lowest concentration at which an analyte can be confidently detected in a sample and its concentration can be reported with a reasonable degree of accuracy and precision.

MDL = Method Detection Limit the minimum concentration that can be measured and reported with a 99 percent confidence that the concentration is greater than 0, but the exact concentration cannot be reliably quantified.

SDG = Sample Delivery Group

1) The MDL and MRL reflect the preparation factor 30 grams/4mL (eg. 7.5). The adjustment factor ratio of Phase 1 to Phase 3 preparation factor is analyte specific as shown in the "Factors to adjust Phase 1 and 2 MRLs" column.

2) The MDL and MRL reflect the standard preparation factor used by EMAX for the SSFL Phase 3 samples.

3) The soil used for the modified method and standard method blanks was Ottawa sand.

Table 5c - EMAX PCB MRL Comparisons based on Method Blank Reporting Limit Results (Phase 1 to Phase 3 Site Data)

Analyte	Units	Modified Method		Standard Method		Factors to adjust Phase 1 and 2 MRLs
		Phases 1 and 2 MRL (from site specific blank): Method Blank Result SDG 12C305 4/17/12		Phase 3 MRL (from site specific blank): Method Blank Result SDG 12F037 6/11/12		Factor Difference (Phase 3 MRL/Phases 1 and 2 MRL)
		MRL [1]	MDL [1]	MRL [2]	MDL [2]	MRL [1]
Aroclor 1016	µg/kg	1.700	0.850	20.000	10.000	11.765
Aroclor 1221	µg/kg	1.700	0.850	20.000	10.000	11.765
Aroclor 1232	µg/kg	1.700	0.850	20.000	10.000	11.765
Aroclor 1242	µg/kg	1.700	0.850	20.000	10.000	11.765
Aroclor 1248	µg/kg	1.700	0.850	20.000	10.000	11.765
Aroclor 1254	µg/kg	1.700	0.850	20.000	10.000	11.765
Aroclor 1260	µg/kg	1.700	0.850	20.000	10.000	11.765
Aroclor 1262	µg/kg	1.700	0.850	20.000	10.000	11.765
Aroclor 1268	µg/kg	1.700	0.850	20.000	10.000	11.765
Aroclor 5432	µg/kg	3.300	1.700	40.000	20.000	12.121
Aroclor 5442	µg/kg	3.300	1.700	40.000	20.000	12.121
Aroclor 5460	µg/kg	3.300	1.700	40.000	20.000	12.121

Notes:

ug/kg = microgram per kilogram

MRL = Method Reporting Limit lowest concentration at which an analyte can be confidently detected in a sample and its concentration can be reported with a reasonable degree of accuracy and precision.

MDL = Method Detection Limit the minimum concentration that can be measured and reported with a 99 percent confidence that the concentration is greater than 0, but the exact concentration cannot be reliably quantified.

SDG = Sample Delivery Group

1) The MDL and MRL reflect the preparation factor 30 grams/4mL (eg. 7.5). The adjustment factor ratio of Phase 1 to Phase 3 preparation factor is analyte specific as shown in the "Factors to adjust Phase 1 and 2 MRLs" column.

2) The MDL and MRL reflect the standard preparation factor used by EMAX for the SSFL Phase 3 samples.

3) The soil used for the modified method and standard method blanks was Ottawa sand.

Table 6 - EMAX MDL to Spike Level Comparison Phase 1 and Phase 2 Data - Herbicide

Analyte	Units	MDL Spike Level	One Tenth of the Spike Level	Calculated MDL by EMAX	Calculated MDL by EMAX - Greater than One Tenth of the Spike Level - Yes/No
2,4-D	µg/kg	6	0.6	1.0011	Yes
2,4-DB	µg/kg	6	0.6	0.517	No
Dalapon	µg/kg	31.5	3.15	1.1217	No
Dicamba	µg/kg	2	0.2	0.5755	Yes
Dichloroprop	µg/kg	4	0.4	1.2	Yes
Dinoseb	µg/kg	2.5	0.25	0.1921	No
MCPA	µg/kg	882.5	88.25	59.863	No
MCPP	µg/kg	882.5	88.25	124.16	Yes
Silvex	µg/kg	0.6	0.06	0.065	Yes
2,4,5-T	µg/kg	0.6	0.06	0.075	Yes

Notes:

2,4-D = Dichlorophenoxyacetic Acid

2,4-DB = 4-(2,4-dichlorophenoxy)butanoic acid

2,4,5-T = 2,4,5-Trichlorophenoxyacetic Acid

2,4,5-TP = Silvex (2,4,5-Trichlorophenoxyacetic acid)

2,4-DP = Dichloroprop

MCPA = 2-Methyl-4-Chlorophenoxyacetic Acid

MCPP = Methylchlorophenoxyproprionic Acid

ug/kg = microgram per kilogram

MDL = Method Detection Limit the minimum concentration that can be measured and reported with a 99 percent confidence that the concentration is greater than 0, but the exact concentration cannot be reliably quantified.

Spike Level = Level at which each MDL sample was spiked at. Refer to Attachment B EMAX Results of Method Detection Limit Study and Limit of Quantitation Verifications.

Attachment A – Part 1
Lancaster Laboratories Inc.
Method Detection Limit Test Data
(See Table 2)

Attachment A Part 1 - MDL Test Data

Compound	MDL Test	Initial Concentration (ug/kg)	Measured Value (ug/kg)	Recovery (%)	Average Recovery (%) Per Individual MDL Test	Average Recovery (%) per Three MDL Tests
2,4,5-T	Test 1	0.2267	0.2429	107.15	107.84	88.89
		0.2267	0.2506	110.54		
		0.2267	0.271	119.54		
		0.2267	0.2359	104.06		
		0.2267	0.2353	103.79		
		0.2267	0.2462	108.60		
		0.2267	0.2294	101.19		
	Test 2	0.2267	0.1969	86.85	76.96	
		0.2267	0.1779	78.47		
		0.2267	0.17	74.99		
		0.2267	0.1733	76.44		
		0.2267	0.1647	72.65		
		0.2267	0.168	74.11		
		0.2267	0.1705	75.21		
	Test 3	0.2267	0.2106	92.90	81.87	
		0.2267	0.1808	79.75		
		0.2267	0.1836	80.99		
		0.2267	0.1638	72.25		
		0.2267	0.1824	80.46		
		0.2267	0.1932	85.22		
		0.2267	0.1848	81.52		
2,4,5-TP	Test 1	0.2267	0.2112	93.16	92.77	77.07
		0.2267	0.208	91.75		
		0.2267	0.2123	93.65		
		0.2267	0.219	96.60		
		0.2267	0.2157	95.15		
		0.2267	0.211	93.07		
		0.2267	0.195	86.02		
	Test 2	0.2267	0.1504	66.34	55.07	
		0.2267	0.1401	61.80		
		0.2267	0.1079	47.60		
		0.2267	0.1406	62.02		
		0.2267	0.1162	51.26		
		0.2267	0.1044	46.05		
		0.2267	0.1143	50.42		
	Test 3	0.2267	0.231	101.90	83.38	
		0.2267	0.2462	108.60		
		0.2267	0.1728	76.22		
		0.2267	0.1496	65.99		
		0.2267	0.196	86.46		
		0.2267	0.1629	71.86		
		0.2267	0.1646	72.61		

Attachment A Part 1 - MDL Test Data

Compound	MDL Test	Initial Concentration (ug/kg)	Measured Value (ug/kg)	Recovery (%)	Average Recovery (%) Per Individual MDL Test	Average Recovery (%) per Three MDL Tests
2,4-D	Test 1	2.2667	2.6335	116.18	118.26	96.65
		2.2667	2.653	117.04		
		2.2667	2.7909	123.13		
		2.2667	2.7908	123.12		
		2.2667	2.7029	119.24		
		2.2667	2.6403	116.48		
		2.2667	2.5535	112.65		
	Test 2	2.2667	2.1074	92.97	77.09	
		2.2667	1.8748	82.71		
		2.2667	1.5728	69.39		
		2.2667	1.8844	83.13		
		2.2667	1.6367	72.21		
		2.2667	1.5333	67.64		
		2.2667	1.6226	71.58		
	Test 3	2.2667	2.4124	106.43	94.59	
		2.2667	1.9815	87.42		
		2.2667	2.1891	96.58		
		2.2667	2.0095	88.65		
		2.2667	2.1256	93.78		
		2.2667	1.9883	87.72		
		2.2667	2.3014	101.53		
2,4-DB	Test 1	2.2712	2.3669	104.21	106.61	96.97
		2.2712	2.3278	102.49		
		2.2712	2.6624	117.22		
		2.2712	2.3456	103.28		
		2.2712	2.4629	108.44		
		2.2712	2.5076	110.41		
		2.2712	2.2762	100.22		
	Test 2	2.2712	2.0344	89.57	90.60	
		2.2712	2.2197	97.73		
		2.2712	2.185	96.20		
		2.2712	1.9079	84.00		
		2.2712	1.794	78.99		
		2.2712	2.2136	97.46		
		2.2712	2.05	90.26		
	Test 3	2.2712	2.273	100.08	93.71	
		2.2712	2.1005	92.48		
		2.2712	2.1665	95.39		
		2.2712	1.8808	82.81		
		2.2712	2.1933	96.57		
		2.2712	2.1936	96.58		
		2.2712	2.09	92.02		

Attachment A Part 1 - MDL Test Data

Compound	MDL Test	Initial Concentration (ug/kg)	Measured Value (ug/kg)	Recovery (%)	Average Recovery (%) Per Individual MDL Test	Average Recovery (%) per Three MDL Tests
2,4-DP	Test 1	2.2757	3.4573	151.92	166.29	129.85
		2.2757	3.9601	174.02		
		2.2757	3.4997	153.79		
		2.2757	3.6964	162.43		
		2.2757	3.3839	148.70		
		2.2757	5.0177	220.49		
		2.2757	3.4743	152.67		
	Test 2	2.2757	2.8954	127.23	111.71	
		2.2757	2.4535	107.81		
		2.2757	2.531	111.22		
		2.2757	2.6988	118.59		
		2.2757	2.3231	102.08		
		2.2757	2.2871	100.50		
		2.2757	2.6061	114.52		
	Test 3	2.2757	2.7185	119.46	111.54	
		2.2757	2.6841	117.95		
		2.2757	2.5053	110.09		
		2.2757	2.2307	98.02		
		2.2757	2.922	128.40		
		2.2757	2.2641	99.49		
		2.2757	2.4443	107.41		
Dalapon	Test 1	5.6803	5.175	91.10	86.29	77.49
		5.6803	4.913	86.49		
		5.6803	4.947	87.09		
		5.6803	5.031	88.57		
		5.6803	4.403	77.51		
		5.6803	5.261	92.62		
		5.6803	4.582	80.66		
	Test 2	5.6803	5.334	93.90	84.55	
		5.6803	4.954	87.21		
		5.6803	4.538	79.89		
		5.6803	4.967	87.44		
		5.6803	4.453	78.39		
		5.6803	4.711	82.94		
		5.6803	4.663	82.09		
	Test 3	5.6803	4.0101	70.60	61.61	
		5.6803	3.4047	59.94		
		5.6803	3.946	69.47		
		5.6803	3.1669	55.75		
		5.6803	3.0445	53.60		
		5.6803	3.8338	67.49		
		5.6803	3.0927	54.45		

Attachment A Part 1 - MDL Test Data

Compound	MDL Test	Initial Concentration (ug/kg)	Measured Value (ug/kg)	Recovery (%)	Average Recovery (%) Per Individual MDL Test	Average Recovery (%) per Three MDL Tests
Dicamba	Test 1	0.2267	0.2599	114.64	144.67	147.79
		0.2267	0.3786	167.00		
		0.2267	0.2879	127.00		
		0.2267	0.2689	118.61		
		0.2267	0.3197	141.02		
		0.2267	0.4405	194.31		
		0.2267	0.3403	150.11		
	Test 2	0.2267	0.3301	145.61	127.36	
		0.2267	0.3021	133.26		
		0.2267	0.2605	114.91		
		0.2267	0.3005	132.55		
		0.2267	0.2817	124.26		
		0.2267	0.2719	119.94		
		0.2267	0.2742	120.95		
	Test 3	0.2267	0.3744	165.15	171.34	
		0.2267	0.3204	141.33		
		0.2267	0.4349	191.84		
		0.2267	0.3995	176.22		
		0.2267	0.3769	166.25		
		0.2267	0.433	191.00		
		0.2267	0.3799	167.58		
Dinoseb	Test 1	2.7404	0.543	19.81	17.72	36.25
		2.7404	0.4892	17.85		
		2.7404	0.3019	11.02		
		2.7404	0.3485	12.72		
		2.7404	0.5526	20.16		
		2.7404	0.702	25.62		
		2.7404	0.4613	16.83		
	Test 2	2.7404	1.5303	55.84	42.48	
		2.7404	0.633	23.10		
		2.7404	1.5552	56.75		
		2.7404	0.1968	7.18		
		2.7404	1.1788	43.02		
		2.7404	1.4855	54.21		
		2.7404	1.569	57.25		
	Test 3	2.7404	2.025	73.89	48.57	
		2.7404	1.4984	54.68		
		2.7404	1.4043	51.24		
		2.7404	1.256	45.83		
		2.7404	1.0679	38.97		
		2.7404	0.8683	31.69		
		2.7404	1.1966	43.67		

Attachment A Part 1 - MDL Test Data

Compound	MDL Test	Initial Concentration (ug/kg)	Measured Value (ug/kg)	Recovery (%)	Average Recovery (%) Per Individual MDL Test	Average Recovery (%) per Three MDL Tests
MCPA	Test 1	227.528	222.6732	97.87	99.06	85.31
		227.528	199.7546	87.79		
		227.528	290.007	127.46		
		227.528	247.5441	108.80		
		227.528	206.8072	90.89		
		227.528	221.8998	97.53		
		227.528	189.0421	83.09		
	Test 2	227.528	267.1662	117.42	81.80	
		227.528	200.9182	88.30		
		227.528	152.0952	66.85		
		227.528	173.4384	76.23		
		227.528	178.7179	78.55		
		227.528	160.2243	70.42		
		227.528	170.2316	74.82		
	Test 3	227.528	195.81	86.06	75.07	
		227.528	139.13	61.15		
		227.528	175.9499	77.33		
		227.528	167.7743	73.74		
		227.528	171.9971	75.59		
		227.528	171.7917	75.50		
		227.528	173.2286	76.14		
MCPP	Test 1	226.984	435.101	191.69	159.88	127.37
		226.984	444.4548	195.81		
		226.984	287.4663	126.65		
		226.984	314.6129	138.61		
		226.984	250.5333	110.37		
		226.984	514.5821	226.70		
		226.984	293.6371	129.36		
	Test 2	226.984	265.109	116.80	140.48	
		226.984	205.9358	90.73		
		226.984	746.0858	328.70		
		226.984	128.9464	56.81		
		226.984	223.3066	98.38		
		226.984	349.6945	154.06		
		226.984	313.0266	137.91		
	Test 3	226.984	307.603	135.52	81.73	
		226.984	249.9572	110.12		
		226.984	153.3274	67.55		
		226.984	124.7388	54.95		
		226.984	169.2946	74.58		
		226.984	152.2124	67.06		
		226.984	141.4397	62.31		

Attachment A Part 1 - MDL Test Data

Compound	MDL Test	Initial Concentration (ug/kg)	Measured Value (ug/kg)	Recovery (%)	Average Recovery (%) Per Individual MDL Test	Average Recovery (%) per Three MDL Tests
PCP	Test 1	0.066	0.0811	122.88	120.45	94.78
		0.066	0.0841	127.42		
		0.066	0.077	116.67		
		0.066	0.0775	117.42		
		0.066	0.0773	117.12		
		0.066	0.0829	125.61		
		0.066	0.0766	116.06		
	Test 2	0.066	0.0462	70.00	64.61	
		0.066	0.0443	67.12		
		0.066	0.0504	76.36		
		0.066	0.0332	50.30		
		0.066	0.0393	59.55		
		0.066	0.0411	62.27		
		0.066	0.044	66.67		
	Test 3	0.066	0.0717	108.64	99.26	
		0.066	0.0611	92.58		
		0.066	0.0656	99.39		
		0.066	0.0572	86.67		
		0.066	0.063	95.45		
		0.066	0.074	112.12		
		0.066	0.066	100.00		

Notes:

Laboratory Conducting the Study = Lancaster Laboratories Inc.
Study Parameters = Seven replicate analyses performed over three days
Analytical Method = Method 8151A
Study Dates = 8/22/11, 8/24/11, and 8/29/11
Media = Ottowa Sand
ug/kg = microgram per kilogram
MDL = Method Detection Limit
% = percent
2,4,5-T = 2,4,5-Trichlorophenoxyacetic Acid
2,4,5-TP = Silvex (2,4,5-Trichlorophenoxyacetic acid)
2,4-D = Dichlorophenoxyacetic Acid
2,4-DB = 4-(2,4-dichlorophenoxy)butanoic acid
2,4-DP = Dichloroprop
MCPA = 2-Methyl-4-Chlorophenoxyacetic Acid
MCPP = Methylchlorophenoxyproprionic Acid
PCP = Pentachlorophenol
Green font = values summarized in Table 2

Attachment A – Part 2
Lancaster Laboratories Inc.
Data Table
(See Tables 1, 2 and 3)

Attachment A Part 2
DATA TABLE
Herbicides MDL Data

Date of MDL Analysis	Test	Scan	Piece	Compound	Units	Conc.	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Mean	STDEV	MDL	Reported LOQ	Reported J Value	Passes 10X Rule	Spike/J Value Ratio	Calculated MDL Higher than the Reported J value	21 point STDEV	21 point MDL	Standard Deviation Times 100	RSD	RSD 21 point	Average of the trials
8/24/2011 5:22:49 PM	2	10401	04177	2,4,5-T	ug/kg	0.2267	0.1969	0.1779	0.17	0.1733	0.1647	0.168	0.1705	0.1745	0.0107	0.0337	0.17	0.082	Y	2.76				1.07	6.131805		
8/22/2011 10:54:05 PM	1	10401	04177	2,4,5-T	ug/kg	0.2267	0.2429	0.2506	0.271	0.2359	0.2353	0.2462	0.2294	0.2445	0.0137	0.0432	0.17	0.082	Y	2.76				1.37	5.603272		
8/29/2011 12:55	3	10401	04177	2,4,5-T	ug/kg	0.2267	0.2106	0.1808	0.1836	0.1638	0.1824	0.1932	0.1848	0.1856	0.0141	0.0444	0.17	0.082	Y	2.76		0.033783	0.0854	1.41	7.596983	16.76464	0.201514
8/24/2011 5:22:49 PM	2	10401	04176	2,4,5-TP	ug/kg	0.2267	0.1504	0.1401	0.1079	0.1406	0.1162	0.1044	0.1143	0.1248	0.0184	0.0577	0.17	0.075	Y	3.02				1.84	14.74359		
8/22/2011 10:54:05 PM	1	10401	04176	2,4,5-TP	ug/kg	0.2267	0.2112	0.208	0.2123	0.219	0.2157	0.211	0.195	0.2103	0.0076	0.0240	0.17	0.075	Y	3.02				0.76	3.613885		
8/29/2011 12:55	3	10401	04176	2,4,5-TP	ug/kg	0.2267	0.231	0.2462	0.1728	0.1496	0.196	0.1629	0.1646	0.189	0.0369	0.116	0.17	0.075	Y	3.02	Yes	0.04374	0.1106	3.69	19.52381	25.03383	0.174724
8/24/2011 5:22:49 PM	2	10401	04174	2,4-D	ug/kg	2.2667	2.1074	1.8748	1.5728	1.8844	1.6367	1.5333	1.6226	1.7474	0.2116	0.6652	3.6	1.2	Y	1.89				21.16	12.10942		
8/22/2011 10:54:05 PM	1	10401	04174	2,4-D	ug/kg	2.2667	2.6335	2.653	2.7909	2.7908	2.7029	2.6403	2.5535	2.6807	0.0871	0.2739	3.6	1.2	Y	1.89				8.71	3.249151		
8/29/2011 12:55	3	10401	04174	2,4-D	ug/kg	2.2667	2.4124	1.9815	2.1891	2.0095	2.1256	1.9883	2.3014	2.144	0.1673	0.5258	3.6	1.2	Y	1.89		0.421524	1.0656	16.73	7.803172	19.24154	2.1907
8/24/2011 5:22:49 PM	2	10401	04254	2,4-DB	ug/kg	2.2712	2.0344	2.2197	2.185	1.9079	1.794	2.2136	2.05	2.0578	0.163	0.5122	1.7	0.62	Y	3.66				16.3	7.921081		
8/22/2011 10:54:05 PM	1	10401	04254	2,4-DB	ug/kg	2.2712	2.3669	2.3278	2.6624	2.3456	2.4629	2.5076	2.2762	2.4213	0.1328	0.4173	1.7	0.62	Y	3.66				13.28	5.484657		
8/29/2011 12:55	3	10401	04254	2,4-DB	ug/kg	2.2712	2.273	2.1005	2.1665	1.8808	2.1933	2.1936	2.09	2.1282	0.1254	0.3942	1.7	0.62	Y	3.66		0.209752	0.5303	12.54	5.892303	9.523539	2.202462
8/24/2011 5:22:49 PM	2	10401	04253	2,4-DP	ug/kg	2.2757	2.8954	2.4535	2.531	2.6988	2.3231	2.2871	2.6061	2.5421	0.2139	0.6722	1.7	0.8	Y	2.84				21.39	8.414303		
8/22/2011 10:54:05 PM	1	10401	04253	2,4-DP	ug/kg	2.2757	3.4573	3.9601	3.4997	3.6964	3.3839	5.0177	3.4743	3.7842	0.578	1.8165	1.7	0.8	Y	2.84	Yes			57.8	15.27403		
8/29/2011 12:55	3	10401	04253	2,4-DP	ug/kg	2.2757	2.7185	2.6841	2.5053	2.2307	2.922	2.2641	2.4443	2.5384	0.2519	0.7917	1.7	0.8	Y	2.84		0.70286	1.7768	25.19	9.923574	23.78608	2.954924
8/24/2011 5:22:49 PM	2	10401	04249	Dalapon	ug/kg	5.6803	5.334	4.954	4.538	4.967	4.453	4.711	4.663	4.8029	0.3034	0.9537	9	4.4	Y	1.29				30.34	6.317017		
8/22/2011 10:54:05 PM	1	10401	04249	Dalapon	ug/kg	5.6803	5.175	4.913	4.947	5.031	4.403	5.261	4.582	4.901714	0.309192	0.9709	9	4.4	Y	1.29				30.91918036	6.30783		
8/29/2011 12:55	3	10401	04249	Dalapon	ug/kg	5.6803	4.0101	3.4047	3.946	3.1669	3.0445	3.8338	3.0927	3.4998	0.4211	1.3235	9	4.4	Y	1.29		0.733497	1.8543	42.11	12.03212	16.66486	4.401462
8/24/2011 5:22:49 PM	2	10401	04250	Dicamba	ug/kg	0.2267	0.3301	0.3021	0.2605	0.3005	0.2817	0.2719	0.2742	0.2887	0.0237	0.0745	1.2	0.4	Y	0.57				2.37	8.209214		
8/22/2011 10:54:05 PM	1	10401	04250	Dicamba	ug/kg	0.2267	0.2599	0.3786	0.2879	0.2689	0.3197	0.4405	0.3403	0.328	0.0648	0.2036	1.2	0.4	Y	0.57				6.48	19.7561		
8/29/2011 12:55	3	10401	04250	Dicamba	ug/kg	0.2267	0.3744	0.3204	0.4349	0.3995	0.3769	0.433	0.3799	0.3884	0.0394	0.1237	1.2	0.4	Y	0.57		0.060485	0.1529	3.94	10.14418	18.05314	0.335038
8/24/2011 5:22:49 PM	2	10401	04175	Dinoseb	ug/kg	2.7404	1.5303	0.633	1.5552	0.1968	1.1788	1.4855	1.569	1.1641	0.5435	1.7082	2.4	0.8	Y	3.43	Yes			54.35	46.68843		
8/22/2011 10:54:05 PM	1	10401	04175	Dinoseb	ug/kg	2.7404	0.543	0.4892	0.3019	0.3485	0.5526	0.702	0.4613	0.4855	0.134	0.4212	2.4	0.8	Y	3.43				13.4	27.60041		
8/29/2011 12:55	3	10401	04175	Dinoseb	ug/kg	2.7404	2.025	1.4984	1.4043	1.256	1.0679	0.8683	1.1966	1.3309	0.3701	1.1634	2.4	0.8	Y	3.43	Yes	0.524843	1.3268	37.01	27.80825	52.8274	0.993505
8/24/2011 5:22:49 PM	2	10401	04252	Mcpa	ug/kg	227.528	267.1662	200.9182	152.0952	173.4384	178.7179	160.2243	170.2316	186.1131	38.9097	122.2933	250	76	Y	2.99	Yes			3890.97	20.90648		
8/22/2011 10:54:05 PM	1	10401	04252	Mcpa	ug/kg	227.528	222.6732	199.7546	290.007	247.5441	206.8072	221.8998	189.0421	225.3897	34.1794	107.4258	250	76	Y	2.99	Yes			3417.94	15.16458		
8/29/2011 12:55	3	10401	04252	Mcpa	ug/kg	227.528	195.81	139.13	175.9499	167.7743	171.9971	171.7917	173.2286	170.8117	16.6957	52.4746	250	76	Y	2.99		37.98812	96.0340	1669.57	9.77433	19.57093	194.1048
8/24/2011 5:22:49 PM	2	10401	04251	Mcpp	ug/kg	226.984	265.109	205.9358	746.0858	128.9464	223.3066	349.6945	313.0266	318.8721	201.8024	634.2651	250	75	Y	3.03	Yes			20180.24	63.28631		
8/22/2011 10:54:05 PM	1	10401	04251	Mcpp	ug/kg	226.984	435.101	444.4548	287.4663	314.6129	250.5333	514.5821	293.6371	362.9125	100.2639	315.1295	250	75	Y	3.03	Yes			10026.39	27.62757		
8/29/2011 12:55	3	10401	04251	Mcpp	ug/kg	226.984	307.603	249.9572	153.3274	124.7388	169.2946	152.2124	141.4397	185.5104	67.2097	211.2401	250	75	Y	3.03	Yes	150.2038	379.7152	6720.97	36.22961	51.95595	289.0983
8/24/2011 5:22:49 PM	2	10401	08104	PCP	ug/kg	0.066	0.0462	0.0443	0.0504	0.0332	0.0393	0.0411	0.044	0.0426	0.0055	0.0172	0.17	0.033	Y	2.00				0.55	12.9108		
8/22/2011 10:54:05 PM	1	10401	08104	PCP	ug/kg	0.066	0.0811	0.0841	0.077	0.0775	0.0773	0.0829	0.0766	0.0795	0.0031	0.0098	0.17	0.033	Y	2.00				0.31	3.899371		
8/29/2011 12:55	3	10401	08104	PCP	ug/kg	0.066	0.0717	0.0611	0.0656	0.0572	0.063	0.074	0.066	0.0655	0.0059	0.0184	0.17	0.033	Y	2.00		0.016265	0.0411	0.59	9.007634	26.00233	0.062552

Notes:
Source of Data: Lancaster Laboratories
MDL - Method Detection Limit
Conc. - Concentration
STDEV - standard deviation
LOQ - Limit of Quantiation = Method Reporting Limit
RSD - relative standard deviation
2,4,5-T = 2,4,5-Trichlorophenoxyacetic Acid
2,4,5-TP = Silvex (2,4,5-Trichlorophenoxyacetic acid)
2,4-D = Dichlorophenoxyacetic Acid
2,4-DB = 4-(2,4-dichlorophenoxy)butanoic acid
2,4-DP = Dichloroprop
MCPA = 2-Methyl-4-Chlorophenoxyacetic Acid
MCPP = Methylchlorophenoxyproprionic Acid
PCP = Pentachlorophenol
Red font - values summarized in Tables 1 and 3
Green font = values summarized in Table 2
MDL higher than the reported J Value

Attachment B
EMAX
Results of Method Detection Limit Study and Limit of Quantitation Verifications

MDL STUDY FOR LOW LEVEL
METHOD 8151 SOIL INST. 16
2012

	7 Point Study												Final Reporting			LOQ Verification								
PARAMETER	MDL-01	MDL-02	MDL-03	MDL-04	MDL-05	MDL-06	MDL-07	MDL Spike Level	SD	Calc MDL	Unit	Section	Reported DL	LOQ		LOQ_EV	LOQ DFileID	LOQ Ver. Date	LOQ_Rst	LOQ Recovery	Matrix	EMAXaSOP	Sample Amt	Unit	fVol_ml
2,4-D	5.52	6.11	5.51	5.18	5.98	5.54	5.60	6.0	0.3186	1.0017	ug/Kg	B	1.80	3.6		3.6	WC12042B	03/13/12	2.582	71%	SOIL	EMAX-8151	20	g	5
2,4-DB	6.30	6.09	6.08	6.01	6.03	6.39	6.37	6.0	0.1946	0.617	ug/Kg	A	0.85	1.7		1.7	WC12042B	03/13/12	1.317	77%	SOIL	EMAX-8151	20	g	5
Dalapon	21.0	20.7	21.5	20.7	21.0	21.5	21.4	21.6	0.3672	1.1217	ug/Kg	A	4.50	9		9.0	WC12042A	03/13/12	11.46	127%	SOIL	EMAX-8151	20	g	5
Dicamba	2.26	2.34	2.30	1.81	2.34	2.21	2.23	2.0	0.1835	0.5735	ug/Kg	B	0.60	1.2		1.2	WC12042A	03/13/12	1.158	96%	SOIL	EMAX-8151	20	g	5
Dichlorprop	4.79	4.77	4.49	3.74	4.81	4.56	4.77	4.0	0.3523	1.200	ug/Kg	B	1.20	2.4		2.4	WC12042A	03/13/12	2.503	104%	SOIL	EMAX-8151	20	g	5
Dinoseb	2.07	2.15	2.08	1.99	2.13	2.04	2.15	2.5	0.0612	0.1921	ug/Kg	C	0.65	1.7		1.7	WC21021A	03/21/12	1.741	102%	SOIL	EMAX-8151	20	g	5
MCPA	856.4	813.9	849.7	872.7	835.8	829.7	802.6	882.5	19.06	59.863	ug/Kg	A	125.00	250		250	WC12042A	03/13/12	346.5	138%	SOIL	EMAX-8151	20	g	5
MCPP	995.5	829.7	856.2	828.4	789.1	845.3	867.7	862.5	39.54	124.16	ug/Kg	A	125.00	250		250	WC12042A	03/13/12	165.7	66%	SOIL	EMAX-8151	20	g	5
Silvex	1.045	1.067	1.054	1.067	1.015	1.040	1.072	0.8	0.0298	0.093	ug/Kg	A	0.09	0.17		0.17	WC12042A	03/13/12	0.229	135%	SOIL	EMAX-8151	20	g	5
2,4,5-T	1.017	1.041	1.068	0.991	1.018	1.031	1.021	0.8	0.0230	0.073	ug/Kg	A	0.09	0.17		0.17	WC12042A	03/13/12	0.217	128%	SOIL	EMAX-8151	20	g	5

Abbreviation	Explanation
LOQ	Reported Reporting Limit
Reported DL	This is 1/2 of the LOQ
LOQ_EV	Spike level for LOQ Verification
LOQ_Rst	Result for LOQ Verification
MDL-XX	Result of MDL at Spike Level
Section A,B,C	Refers to Raw Data detail due to multiple spike levels and standard mixes.

Notes:
Laboratory Conducting the Study: EMAX Laboratory
Study Parameters: Seven-point MDL study
Study Dates: MDL – March 2012
Study Parameters: LOQ Verifications where compounds were spiked at levels equal to or slightly above the LOQ
Study Dates: LOQ – September 2011; December 2011; March 2012 Media: Soil

DL = detection limit
EV = expected value
DFileID = data file ID
Rst = result

Reviewed by: [signature] 3/23/12

Date: 3/23/12

EMAX LABORATORIES, INC.

LOQ Verification
LOW LEVEL METHOD: SW 8151A (SOIL)
3rd Qtr. 2011

Sample Amt (g): 20
Extract vol (mL): 5

Extraction batch and date: HEH012S -8/30/11
HEI002S - 9/8/11
Analytical batch and date: QI01 - 9/2/2011
QI09 - 9/9/2011

PARAMETER	Unit	Reported DL	LOQ VERIFICATION				
			LOQ	DFileID	Verification Date	LOQ_Rst	Verification % Rec
2,4-D	ug/Kg	1.8	3.6	QI09004B	9/9/2011	3.88	108
2,4-DB	ug/Kg	0.85	1.2	QI01026B	9/2/2011	1.21	101
Dalapon	ug/Kg	4.5	9.0	QI09005B	9/9/2011	9.24	103
Dicamba	ug/Kg	0.6	1.2	QI01026B	9/2/2011	1.34	111
Dichlorprop	ug/Kg	0.85	1.2	QI01026B	9/2/2011	1.65	137
Dinoseb	ug/Kg	1.2	2.4	QI01027A	9/2/2011	2.48	103
MCPA	ug/Kg	125	250	QI01028A	9/2/2011	333	133
MCPP	ug/Kg	125	250	QI01028A	9/2/2011	289	115
Silvex	ug/Kg	0.085	0.17	QI01025B	9/2/2011	0.207	122
2,4,5-T	ug/Kg	0.085	0.17	QI01025B	9/2/2011	0.181	106

DL= detection Limit
EV = expected value
DFileID = data file ID
Rst = result

Reviewed by: _____

Date: _____

LOQ Verification LOW LEVEL METHOD: SW 8151A (SOIL)

4th Qtr. 2011

EMAX LABORATORIES, INC.

Extraction batch and date: HEL002S - 12/8/11
HEL004S - 12/12/11

Sample Amt (g): 20
Extract vol (mL): 5

Analytical batch and date: WL09 - 12/9/11
WL13 - 12/13/11

PARAMETER	Unit	Reported DL	LOQ VERIFICATION				
			LOQ	DFileID	Verification Date	LOQ_Rst	Verification % Rec
2,4-D	ug/Kg	1.8	3.6	WL09011B	12/9/2011	4.75	132
2,4-DB	ug/Kg	0.85	1.2	WL13005A	12/13/2011	1.34	112
Dalapon	ug/Kg	4.5	9.0	WL13007A	12/13/2011	12.14	135
Dicamba	ug/Kg	0.6	1.2	WL13005B	12/13/2011	1.55	129
Dichlorprop	ug/Kg	0.85	1.2	WL13005B	12/13/2011	1.55	129
Dinoseb	ug/Kg	1.2	2.4	WL09009B	12/9/2011	2.85	119
MCPA	ug/Kg	125	250	WL13006B	12/13/2011	311	124
MCPP	ug/Kg	125	250	WL13006A	12/13/2011	301	121
Silvex	ug/Kg	0.085	0.17	WL13004A	12/13/2011	0.281	165
2,4,5-T	ug/Kg	0.085	0.17	WL13004A	12/13/2011	0.165	97

DL= detection Limit
EV = expected value
DFileID = data file ID
Rst = result

Reviewed by: _____

Date: _____

Attachment C
Email Documentation and Laboratory Raw Data Backup

Laboratory Emails

Zakowski, Cherie

From: Natalie R. Luciano <NLuciano@lancasterlabs.com>
Sent: Tuesday, August 06, 2013 10:19 AM
To: Zakowski, Cherie
Cc: Duane A. Luckenbill
Subject: RE: SSFL Herbicides
Attachments: CDM Batches.xls

Hi Cherie,

Please find the spreadsheet I mentioned attached. The analyses are separated onto different tabs within the spreadsheet. Please let me know if this spreadsheet is sufficient for your needs.

I confirmed with the technical group that the Pesticides should be a factor a 5x from what was done in 2011, not 10x. For the pesticides, we took 60g to 10ml and then performed GPC of 5ml to 2ml final volume for a factor 5 of the normal 30g to 10ml with GPC of 5ml to 5ml final volume. If you have any additional questions, please let me know.

Thank you,
Natalie
Senior Specialist, Environmental Client Services
Phone: 717-556-7258

From: Natalie R. Luciano
Sent: Tuesday, August 06, 2013 8:28 AM
To: 'Zakowski, Cherie'; Duane A. Luckenbill
Subject: RE: SSFL Herbicides

Hi Cherie,

I believe you can find this in PH048. This package should have been received in early July (possibly around the 5th). Let me know if you need any further assistance. The Herbicide data starts on page 306 in the package. Let me know if you need any further assistance.

Thanks,
Natalie
Senior Specialist, Environmental Client Services
Phone: 717-556-7258

From: Zakowski, Cherie [mailto:ZakowskiCA@cdmsmith.com]
Sent: Monday, August 05, 2013 10:08 PM
To: Duane A. Luckenbill; Natalie R. Luciano
Subject: RE: SSFL Herbicides

Yes – that is why I need a Phase 3 herbicide soil limit comparison. We should be looking at the Prep blanks correct? There would be one for waters and one for soils. We only changed the soil RLs. I believe we are on the same page correct?

Thanks!

Cherie Zakowski
Project Manager/Scientist
CDM Smith

555 17th Street, Suite 1100
Denver, CO 80202
Direct Phone: 720-264-1109
Main Phone: 303-383-2300
Fax: 303-308-3003

From: Duane A. Luckenbill [mailto:DLuckenbill@lancasterlabs.com]
Sent: Monday, August 05, 2013 7:15 PM
To: Zakowski, Cherie; Natalie R. Luciano
Subject: RE: SSFL Herbicides

Cherie,

I thought we were evaluating soils limits, not waters.

Thanks
Duane

From: Zakowski, Cherie [mailto:ZakowskiCA@cdmsmith.com]
Sent: Monday, August 05, 2013 8:35 PM
To: Duane A. Luckenbill; Natalie R. Luciano
Subject: SSFL Herbicides

Hello: Please see attached. Herb 1 is from 2011 and Herb 2 is from 2013. Now the MDLs and LOQs look alike but the only sample I could find so far was for a field blank. Natalie can you find a prep blank in some of your newer data that has soils with it that I haven't gotten yet? All the other Phase 3 herbicides are from those other labs.

I also included the pest and PCB method blanks. I just didn't include all the data as I am only focusing on the herbicide right now.

Thanks for your help.

Cherie Zakowski
Project Manager/Scientist
CDM Smith
555 17th Street, Suite 1100
Denver, CO 80202
Direct Phone: 720-264-1109
Main Phone: 303-383-2300
Fax: 303-308-3003

Zakowski, Cherie

From: Burgesser, Todd
Sent: Wednesday, May 22, 2013 12:16 PM
To: Zakowski, Cherie
Subject: FW:

All Lancaster results should go up 3x
ciano [mailto:NLuciano@lancasterlabs.com]
Sent: Wednesday, May 22, 2013 12:14 PM
To: Burgesser, Todd; Nicole Maljovec
Subject: RE:

Hi Todd,

Here is what I found out. For the PCB, Herbicide, and Pesticide soil preparations we are doing 30:10 this round. In phase one we did 60:2, so it is a factor of 10 for all 3 preparations on the soil analyses.

There is the possibility that we had to raise limits due to the matrix, and there may be some instances where an MDL changed slightly. In general, a 10 times difference would be the case. If you need any additional information, let me know.

Thanks,
Natalie
Senior Specialist, Environmental Client Services
Phone: 717-556-7258

From: Burgesser, Todd [mailto:BurgesserTE@cdmsmith.com]
Sent: Tuesday, May 21, 2013 4:29 PM
To: Nicole Maljovec; Natalie R. Luciano
Subject:

What was the prep factor difference for the co-located samples vs the phase 3 samples for PCBs, herbicides and pesticides? We have been requested to adjust all of the reporting limits for non-detect results for the co-located (modified methods) up to the standard reporting limit and we are hoping that a simple factor of 10x or so will work? I realize Nicole is probably laboring today.

CDM Smith
Todd Burgesser, CHMM
Office Phone: 303.383.2300
Direct Phone: 303.383.2476 | Cell: 303.319.5043
Fax: 303.308.3003 | Email: burgesserte@cdmsmith.com

Zakowski, Cherie

From: Zakowski, Cherie
Sent: Monday, June 03, 2013 2:17 PM
To: Ye Myint
Cc: Jim Carter
Subject: RE: prep factor for SSFL

Thanks for getting back to me. This is good. I am glad we talked too.

Also, did you get a chance to review those samples with the high nondetect reporting limits? I assume the one sample that had a 6000 reporting limit would get multiplied by the 2 or 2.5 (I can't remember which one it is).

Thanks for the feedback.

Cherie Zakowski
Project Manager/Scientist
CDM Smith
555 17th Street, Suite 1100
Denver, CO 80202
Direct Phone: 720-264-1109
Main Phone: 303-383-2300
Fax: 303-308-3003

From: Ye Myint [mailto:YMyint@emaxlabs.com]
Sent: 2013-06-03 12:04 PM
To: Zakowski, Cherie
Cc: Jim Carter
Subject: FW: prep factor for SSFL

Hi Cherie,

The factors that Todd had based on the procedures done for Collocated below have been confirmed. Please use these factors as discussed last week instead of the ones I provided on May 22.

8151 RLs get multiplied by 2

8081 and 8082 get multiplied by 2.5

Sorry for the confusion. I'm glad that we had a conference call and had a better understanding of the process you are going through to make these adjustments. Please let me know if there is anything else I can assist you with.

Thanks.

Ye
310-618-8889 x121

From: Burgesser, Todd [mailto:BurgesserTE@cdmsmith.com]
Sent: Tuesday, May 21, 2013 1:22 PM
To: Ye Myint

Cc: Zakowski, Cherie
Subject: RE: prep factor for SSFL

So, 8151 RLs get multiplied by 2

8081 and 8082 get multiplied by 2.5

No other changes to the method like injection volume?

From: Ye Myint [mailto:YMyint@emaxlabs.com]
Sent: Tuesday, May 21, 2013 1:59 PM
To: Burgesser, Todd
Cc: Zakowski, Cherie
Subject: RE: prep factor for SSFL

Hello Todd,

Below please find the sample amount/final volume used for these methods. Please note that we not only modified the sample ratios, but also the ICAL used for collocated samples to achieve the low level as required for the event. Please let me know if you have any questions. Thanks.

Collocated:

8081A/8082 : 30 gram to 4ml
8151A : 20 gram to 5 ml.

Phase 3 :

8081A/8082 : 30 gram to 10 ml
8151A : 10 gram to 5 ml.

Ye
310-618-8889 x121

From: Burgesser, Todd [mailto:BurgesserTE@cdmsmith.com]
Sent: Tuesday, May 21, 2013 9:01 AM
To: Ye Myint; Caspar Pang; Jim Carter
Cc: Zakowski, Cherie
Subject: prep factor for SSFL

Ye and all,

What was the prep factor difference for the co-located samples vs the phase 3 samples for PCBs, herbicides and pesticides? We have been requested to adjust all of the reporting limits for non-detect results for the co-located (modified methods) up to the standard reporting limit and we are hoping that a simple factor of 10x or so will work?

CDM Smith
Todd Burgesser, CHMM
Office Phone: 303.383.2300
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LLI Laboratory Control Sample Limits (Table 2)

Lancaster Laboratories

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DE094
Matrix: SOLID

Pesticide Residue Analysis
Fraction: Herbicides

LCS: LCS19073	Batch: 110730019A (Sample number(s): 6218894-6218907, 6218909)							
Analyte	Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
2,4-D	8.33	6.94		83		73-146		
Dalapon	20.88	6.35		30		11-116		
2,4,5-TP	.83	.6		72		68-114		
Dicamba	.83	.54		65		54-121		
MCPP (Mecoprop)	834.5	539.39		65		54-137		
Dinoseb	14.2	4.26		30		10-36		
MCPA	836.5	635.22		76		60-130		
2,4-DP (Dichlorprop)	8.37	7.89		94		62-170		
2,4,5-T	.83	.63		76		73-143		
2,4-DB	8.35	7.53		90		62-131		

DE094 2879

Lancaster Laboratories

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DE094
Matrix: LIQUID

Pesticide Residue Analysis
Fraction: Herbicides

LCS: LCS03064	Batch: 110640003A (Sample number(s): 6218910)							
Analyte	Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Dalapon	6.3	4.3		68		40-100		
Dicamba	.25	.24		96		68-135		
MCPP	250	260		104		67-137		
MCPA	500	450.		90		65-128		
2,4-DP (Dichlorprop)	2.5	3.2		128		76-170		
2,4-D	2.5	2.7		108		73-157		
2,4,5-TP	.25	.26		104		63-134		
2,4,5-T	.25	.25		100		63-147		
2,4-DB	2.5	2.7		108		65-130		
Dinoseb	4.3	3.6		84		32-91		

DE094 2079

Table 5 – Method 8151A (Table 2)

TABLE 5

ACCURACY AND PRECISION FOR DIAZOMETHANE DERIVATIZATION
CLAY MATRIX

Compound	Mean Percent Recovery[a]	Linear Concentration Range[b] (ng/g)	Percent Relative Standard Deviation[c] (n=20)
Dicamba	95.7	0.52 - 104	7.5
MCPP	98.3	620 - 61,800	3.4
MCPA	96.9	620 - 61,200	5.3
Dichloroprop	97.3	1.5 - 3,000	5.0
2,4-D	84.3	1.2 - 2,440	5.3
2,4,5-TP	94.5	0.42 - 828	5.7
2,4,5-T	83.1	0.42 - 828	7.3
2,4-DB	90.7	4.0 - 8,060	7.6
Dinoseb	93.7	0.82 - 1,620	8.7

[a] Mean percent recovery calculated from 10 determinations of spiked clay and clay/still bottom samples over the linear concentration range.

[b] Linear concentration range was determined using standard solutions and corrected to 50 g solid samples.

[c] Percent relative standard deviation was calculated using standard solutions, 10 samples high in the linear concentration range, and 10 samples low in the range.

LLI Herbicide Site Specific Phase 1
Method Blank Raw Data
SDG DE093
(See Table 4a)

Lancaster Laboratories

Quality Control Summary
Method Blank
Pesticide Residue Analysis
SDG: DE093
Matrix: SOLID

Fraction: Herbicides

110690015 / PBLK15069 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
2,4-D	03/12/11	N.D.	ug/kg	1.2	3.6
Dalapon	03/12/11	N.D.	ug/kg	4.4	9.0
2,4,5-TP	03/12/11	N.D.	ug/kg	0.075	0.17
Dicamba	03/12/11	N.D.	ug/kg	0.40	1.2
MCPP (Mecoprop)	03/12/11	N.D.	ug/kg	75	250
Dinoseb	03/12/11	N.D.	ug/kg	0.80	2.4
MCPA	03/12/11	N.D.	ug/kg	76	250
2,4-DP (Dichlorprop)	03/12/11	N.D.	ug/kg	0.80	1.7
2,4,5-T	03/12/11	N.D.	ug/kg	0.082	0.17
2,4-DB	03/12/11	N.D.	ug/kg	0.62	1.7

DE093 1991

LLI Herbicide Site Specific Phase 3
Method Blank Raw Data
SDG PH067
(See Table 4a)

eurofins | Lancaster Laboratories Environmental

Quality Control Summary
Method Blank
Pesticide Residue Analysis
SDG: PH067
Matrix: SOLID

Fraction: Herbicides

131980028A / PBLK28198 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Dalapon	07/19/13	N.D.	ug/kg	44	90
Dicamba	07/19/13	N.D.	ug/kg	4.0	12
MCPP (Mecoprop)	07/19/13	N.D.	ug/kg	750	2500
MCPA	07/19/13	N.D.	ug/kg	760	2500
2,4-DP (Dichlorprop)	07/19/13	N.D.	ug/kg	9.0	17
2,4-D	07/19/13	N.D.	ug/kg	12	36
2,4,5-TP	07/19/13	N.D.	ug/kg	0.75	1.7
Dinoseb	07/19/13	N.D.	ug/kg	9.0	24
2,4,5-T	07/19/13	N.D.	ug/kg	0.82	1.7
2,4-DB	07/19/13	N.D.	ug/kg	6.2	17

LLI Herbicide Non Site Specific Method Blank Raw Data DMS01 (See Table 4a)

Lancaster Laboratories Single Component Data Summary

Sample Name: BLANKA 3/24/11F PBLK19082 **Sample ID:** AB **Batchnumber:** 110820019A
Sample Amount: 30 ml Total Volume: 10 ml Analyst: 709 SDG: State:
Analyses: 10401

Analysis Report (A)

Injected on : MAR 25, 2011 12:24:58
Instrument : CP15--H8456A
Result file : 4H15071.06R
Calibration file : 1H15071.CAL
Method file : HERW.MET
%SSR(DCAA) : 65.4% (36-156) Conc.: 43.588581

Peak name	Min	R.T.	Max	Height	Amount
DCAA	8.41	8.46	8.47	10030	43.588581
MCPP	8.76	8.78	8.82	28	-2915.418701
DBOFB	9.89	9.93	9.95	87526 E	3.333333
PCP	10.45	10.51	10.51	44	-0.583932
2,4,5-T	11.01	11.06	11.07	38	0.027939
2,4-DB	11.56	11.59	11.62	43	0.278994

Analysis Report (B)

Injected on : MAR 25, 2011 12:24:58
Instrument : CP16--H8456B
Result file : 4H15071B.06R
Calibration file : 1H15071B.CAL
Method file : HERWB.MET
%SSR(DCAA) : 63.8% (36-156) Conc.: 42.530907

Peak name	Min	R.T.	Max	Height	Amount
DCAA	8.22	8.26	8.28	25844	42.530907
DICAMBA	8.44	8.49	8.50	422	0.159251
MCPA	8.84	8.87	8.90	144	48.903809
DBOFB	9.05	9.08	9.11	163796 E	3.333333
2,4-D	9.57	9.58	9.63	344	0.507775
DINOSEB	11.08	11.08	11.14	132	-6.822419

Summary Report

Compound Name	Column	Amount Found	LOQ	MDL	Qualifiers	%Difference	Comments
☑ Dalapon			<90	<44			
☐ DCAA	A	43.588581				2.46	
☑ DICAMBA			<12	<4			
☑ MCPP			<2500	<760			
☑ MCPA			<2500	<760			
☑ 2,4-DP			<17	<8			
☑ 2,4-D			<36	<12			
☐ DBOFB	A	3.333333			E	0.00	
☑ PCP			<1.7	<0.33			
☑ 2,4,5-TP			<1.7	<0.75			
☑ 2,4,5-T			<1.7	<0.82			
☑ 2,4-DB			<17	<6.2			
☑ DINOSEB			<24	<8			

Units: ug/kg

Reviewed by: C Hammaker Verified by: Sarah Snyder
Date: 3/28/11 Date: MAR 28 2011

Sarah Snyder
Senior Specialist

%Difference = High - Low Amount divided by the Average times 100
** %Difference > 40, lower amount found reported
* Recovery outside QC Limits

Higher Amount Found unless RPD > 40

Printed on: 3/28/11 07:55:43

LLI Pesticide Site Specific Phase 1
Method Blank Raw Data
SDG DE256
(See Table 4b)

Lancaster Laboratories

Quality Control Summary
Method Blank
Pesticide Residue Analysis
SDG: DE256
Matrix: SOLID

Fraction: Pesticides

112790039A / PBLK39279 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Alpha BHC	10/11/11	N.D.	ug/kg	0.034	0.17
Gamma BHC - Lindane	10/11/11	N.D.	ug/kg	0.034	0.17
Beta BHC	10/11/11	N.D.	ug/kg	0.060	0.17
Delta BHC	10/11/11	N.D.	ug/kg	0.036	0.17
Heptachlor	10/11/11	N.D.	ug/kg	0.060	0.17
Aldrin	10/11/11	N.D.	ug/kg	0.066	0.17
Heptachlor Epoxide	10/11/11	N.D.	ug/kg	0.034	0.17
p,p-DDE	10/11/11	N.D.	ug/kg	0.066	0.34
Endosulfan I	10/11/11	N.D.	ug/kg	0.044	0.17
Dieldrin	10/11/11	N.D.	ug/kg	0.066	0.34
Endrin	10/11/11	N.D.	ug/kg	0.066	0.34
p,p-DDD	10/11/11	N.D.	ug/kg	0.066	0.34
Endosulfan II	10/11/11	N.D.	ug/kg	0.066	0.34
p,p-DDT	10/11/11	N.D.	ug/kg	0.066	0.34
Endrin Aldehyde	10/11/11	N.D.	ug/kg	0.066	0.34
Methoxychlor	10/11/11	N.D.	ug/kg	0.34	1.7
Endosulfan Sulfate	10/11/11	N.D.	ug/kg	0.066	0.34
Mirex	10/11/11	N.D.	ug/kg	0.066	0.34
Endrin Ketone	10/11/11	N.D.	ug/kg	0.066	0.34
Chlordane	10/11/11	N.D.	ug/kg	0.80	3.4
Toxaphene	10/11/11	N.D.	ug/kg	2.2	6.6

Phase 1
Post -

DE256 3234

LLI Pesticide Non Site Specific Method Blank Raw Data SDG 110840007 (See Table 4b)

Organic Extraction Batchlog Assigned to: 1364 JoElla Rice

Reviewed by: _____ Start Date: 3/25/11 Start time: 1800

110840007A

Tech 1: SLA-Sdy Tech 2: _____

Dept: 24 Prep Analysis: 11134 Pesticide Screen Soils Ext OC Pesticides in Solids

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
6235650MSD	DE40SMSD	30	SS1106324A	1.0	MS1108024A	1.0	10	—	—	20	Sandy
6235650MS	DE40SMS	30	SS1106324A	1.0	MS1108024A	1.0	10	~	~	20	"
BLANKA	PBLK07084	30	SS1106324A	1.0			10	~	—		
LCSA	LCS07084	30	SS1106324A	1.0	MS1108024A	1.0	10	~	—		
LCSDKEP	LCSD07084	30	SS1106324A	1.0	MS1106124E	1.0	10	~	—		
LCSKEP	LCS07084	30	SS1106324A	1.0	MS1106124E	1.0	10	~	~		

Solvent Used	Lot No.
1:1 Hexane/Acetone	5040322 HA
Filter Paper	391227
Hexane	—
Sodium Sulfate	110847A

Spike Solutions: Witness: NA

MS1106124E KEPONE SPIKE
MS1108024A SW846 SPIKE
SS1106324A SW846 SURROGATE STANDARD

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	Due Date	Prio
1 6235650	DE40S	30	SS1106324A	1.0	10	~	—	20	Sandy	01363	03/31/2011	P
2 6235651	DE40D	30	SS1106324A	1.0	10	~	—	20	"	01363	03/31/2011	P
3 6235652	DE41S	30	SS1106324A	1.0	10	~	—	20	Sandy	01363	03/31/2011	P
4 6235653	DE41D	30	SS1106324A	1.0	10	~	—	20	Brown Silty	01363	03/31/2011	P
5 6235654	DE38S	30	SS1106324A	1.0	10	~	—	20	"	01363	03/31/2011	P
6 6235655	DE38D	30	SS1106324A	1.0	10	~	—	20	Sandy	01363	03/31/2011	P
7 6235657	DESD1	30	SS1106324A	1.0	10	~	—	20	Wet, Leaves, Moss	01363	03/31/2011	P
8 6235658	DESDA	30	SS1106324A	1.0	10	~	—	20	"	01363	03/31/2011	P
9 6235659	DESD2	30	SS1106324A	1.0	10	~	—	20	"	01363	03/31/2011	P
10 6235660	DESD3	30	SS1106324A	1.0	10	~	—	20	"	01363	03/31/2011	P
11 6235661	DESD4	30	SS1106324A	1.0	10	~	—	20	Wet, Leaves,	01363	03/31/2011	P

SLA 3/25/11

Rack ID:		Work Station	Sem4
Internal Standard		Balance #	2910

S-bath ID 3 | 91 | C | S-bath ID | C | N-Evap 6 | 35 | C | M-vap | C | 110840007A

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Lancaster Laboratories-Single Component Data Summary

Sample Name: BLANKA 3/25/11G PBLK07084Sample ID: AB **Batchnumber: 110840007A**
Sample Amount: 30 g Total Volume: 10 ml Analyst: 2131 SDG: State:
Analyses: 01363

Analysis Report (A)

Injected on : MAR 29, 2011 17:04:15
Instrument : CP13--H6722A
Result file : 1P13088.42R
Calibration file : 1P13088.CAL
Method file : PESTD.MET

%SSR(TCX) : 70.7% (28-121) Conc.: 7.359066
%SSR(DCB) : 84.5% (45-150) Conc.: 8.812119

Peak name	Min	R.T.	Max	Height	Amount
TCX	3.32	3.35	3.38	134190	7.359066
alpha-BHC	3.75	3.75	3.81	635	0.025282
HCB	3.78	3.81	3.84	193	0.007121
gamma-BHC	4.04	4.05	4.10	306	0.012962
delta-BHC	4.43	4.44	4.49	5036	0.225574
Heptachlor	4.54	4.56	4.60	94	0.004006
Aldrin	4.83	4.87	4.89	687	0.034915
Telodrin	4.91	4.95	4.97	5530	0.288708
Hept. epoxide	5.20	5.23	5.26	239	0.012727
o,p-DDE	5.35	5.35	5.41	340	0.027862
g. Chlordane	5.42	5.44	5.48	14309	0.716598
Endosulfan I	5.53	5.55	5.59	2259	0.115218
Dieldrin	5.77	5.79	5.83	676	0.037414
Endrin	5.97	6.01	6.03	863	0.052964
o,p-DDT	6.00	6.03	6.06	935	0.074546
4,4'-DDD	6.09	6.12	6.15	895	0.063290
Kepone	6.22	6.22	6.28	2241	0.859822
Endrin aldehyde	6.28	6.29	6.34	1124	0.079265
4,4'-DDT	6.36	6.42	6.42	737	0.047967
Endo. sulfate	6.48	6.51	6.54	1153	0.075487
Endrin ketone	6.92	6.97	6.98	729	0.040391
DCB	8.53	8.58	8.63	117950	8.812119

Analysis Report (B)

Injected on : MAR 29, 2011 17:04:15
Instrument : CP13--H6722B
Result file : 1P13088B.42R
Calibration file : 1P13088B.CAL
Method file : PESTDB.MET

%SSR(TCX) : 69.4% (28-121) Conc.: 7.232365
%SSR(DCB) : 87.4% (45-150) Conc.: 9.107546

Peak name	Min	R.T.	Max	Height	Amount
TCX	2.91	2.94	2.97	58900	7.232365
alpha-BHC	3.41	3.41	3.47	232	0.020758
beta-BHC	3.99	4.03	4.05	2447	0.384844
Aldrin	4.28	4.30	4.34	192	0.018629
Telodrin	4.38	4.40	4.44	246	0.023818
o,p-DDE	4.88	4.90	4.94	1489	0.192261
g. Chlordane	4.94	4.99	5.00	1857	0.161077
a. Chlordane	5.00	5.04	5.06	802	0.066356
Dieldrin	5.28	5.29	5.34	9228	0.817468
o,p-DDT	5.52	5.56	5.58	721	0.084135
4,4'-DDD	5.64	5.68	5.70	1036	0.117447
Endosulfan II	5.77	5.82	5.83	845	0.080363
4,4'-DDT	5.85	5.89	5.91	176	0.016913
Endrin aldehyde	5.93	5.94	5.99	181	0.019373
Endo. sulfate	6.12	6.16	6.18	829	0.079905
Endrin ketone	6.57	6.62	6.63	330	0.024560
DCB	7.65	7.69	7.75	94703	9.107546

Summary Report

Compound Name	Column	Amount Found	LOQ	MDL	Qualifiers	%Difference	Comments
☐ TCX	A	7.359066				1.74	
☑ alpha-BHC			<0.83	<0.17			
☑ HCB			<0.83	<0.21			
☑ gamma-BHC			<0.83	<0.17			
☑ beta-BHC			<0.83	<0.3			
☑ delta-BHC			<0.83	<0.18			
☑ Heptachlor			<0.83	<0.3			
☑ Aldrin			<0.83	<0.33			
☑ Telodrin			<1.2	<0.4			
☑ Hept. epoxide			<0.83	<0.17			
☑ o,p-DDE			<1.7	<0.33			
☑ g. Chlordane			<0.83	<0.25			
☑ a. Chlordane			<0.83	<0.23			
☑ Endosulfan I			<0.83	<0.22			
☑ 4,4'-DDE			<1.7	<0.33			
☑ o,p-DDD			<1.7	<0.33			
☑ Dieldrin			<1.7	<0.33			
☑ Endrin			<1.7	<0.33			
☑ o,p-DDT			<1.7	<0.33			

%Difference = High - Low Amount divided by the Average times 100 Higher Amount Found unless RPD > 40
** %Difference > 40, lower amount found reported
* Recovery outside QC Limits

Printed on: 3/30/2011 10:53:56

Lancaster Laboratories Single Component Data Summary

Sample Name: BLANKA 3/25/11G PBLK07084 Sample ID: AB **Batchnumber: 110840007A**
Sample Amount: 30 g Total Volume: 10 ml Analyst: 2131 SDG: State:
Analyses: 01363

Analysis Report (A)

Injected on	: MAR 29, 2011 17:04:15
Instrument	: CP13--H6722A
Result file	: 1P13088.42R
Calibration file	: 1P13088.CAL
Method file	: PESTD.MET

Analysis Report (B)

Injected on	: MAR 29, 2011 17:04:15
Instrument	: CP13--H6722B
Result file	: 1P13088B.42R
Calibration file	: 1P13088B.CAL
Method file	: PESTDB.MET

Summary Report

Compound Name	Column	Amount Found	LOQ	MDL	Qualifiers	%Difference	Comments
☑ 4,4'-DDD			<1.7	<0.33			
☑ Endosulfan II			<1.7	<0.33			
☑ Kepone			<7	<2.3			
☑ Endrin aldehyde			<1.7	<0.33			
☑ 4,4'-DDT			<1.7	<0.33			
☑ Endo. sulfate			<1.7	<0.33			
☑ Methoxychlor			<8.3	<1.7			
☑ Endrin ketone			<1.7	<0.33			
☑ Mirex			<1.7	<0.33			
☐ DCB	B	9.107546				3.30	

Units: ug/kg

Reviewed by: [signature] Verified by: [signature] MAR 31 2011

Date: 3-30-11 Date:

Andrea J. Covey
Senior Specialist

%Difference = High - Low Amount divided by the Average times 100 Higher Amount Found unless RPD > 40
** %Difference > 40, lower amount found reported
* Recovery outside QC Limits

Printed on: 3/30/2011 10:53:56

Multiple Component Data Summary

Sample Name: BLANKA 3/25/11G PBLK07084 BLK Sample ID:AB **Batchnumber:** 110840007A
Sample Amount: 30 g Total Volume: 10 ml Analyst: 2131 SDG: State:
Analyses: 01363

Analysis Report (A)

Injected on	Mar 29, 2011 17:04:15
Instrument	H6722A
Result file	1P13088.42R
Calibration file	1P13088
Method file	PESTD

%SSR(TCX)	70.7%	Conc:	7.359066
%SSR(DCB)	84.5%	Conc:	8.812119

Analysis Report (B)

Injected on	Mar 29, 2011 17:04:15
Instrument	H6722B
Result file	1P13088B.42R
Calibration file	1P13088B
Method file	PESTDB

%SSR(TCX)	69.4%	Conc:	7.232365
%SSR(DCB)	87.4%	Conc:	9.107546

Summary Report

Compound Name	Column	Amount Found	LOQ	MDL	Qualifiers	%Difference	No. of Hits Required	Max %RSD	Comments
Chlordane (Technical)			<17	<4			2	20	
Toxaphene			<33	<11			4	30	

Units: ug/kg

%Difference = High - Low divided by the Average times 100

Reviewed by: [signature] Verified by: [signature]

Date: 3-30-11 Date: MAR 31 2011

Andrea J. Covey
Senior Specialist

Lancaster Laboratories Multiple Component Peak Data Report

Sample Name: BLANKA 3/25/11G PBLK07084 Sample ID: AB **Batchnumber: 110840007A**
Sample Amount: 30 g Total Volume: 10 ml Analyst: 2131 SDG: State:
Analyses: 01363

Analysis Report (A)

Injected on : MAR 29, 2011 17:04:15
Instrument : CP13--H6722A
Result file : 1P13088.42R
Calibration file : 1P13088.CAL
Method file : PESTD.MET

%SSR(TCX) : 70.7% (28-121) Conc.: 7.359066
%SSR(DCB) : 84.5% (45-150) Conc.: 8.812119

Min	R.T.	Max	Height	Amount	Pks	%RSD	Peak
Aroclor-1016					4	71.67	
3.70	3.75	3.76	635.243774	1.771653			1
4.19	4.22	4.25	1666.16687	3.847649			2
4.51	4.56	4.57	93.72998	0.213922			4
4.60	4.61	4.66	1332.915283	3.243221			5
Height Summation:			3728.055907				
Amount Avg CF:			2.269111	Linear:			
Aroclor-1221					2	114.05	
3.63	3.64	3.69	1650.584595	11.450465			2
3.70	3.75	3.76	635.243774	1.226564			3
Height Summation:			2285.828369				
Amount Avg CF:			6.338515	Linear:			
Aroclor-1232					4	91.90	
3.70	3.75	3.76	635.243774	1.455362			1
4.19	4.22	4.25	1666.16687	8.61803			2
4.51	4.56	4.57	93.72998	0.463173			4
4.60	4.61	4.66	1332.915283	7.070418			5
Height Summation:			3728.055907				
Amount Avg CF:			4.401746	Linear:			
Aroclor-1242					4	72.12	
3.70	3.75	3.76	635.243774	2.030279			1
4.19	4.22	4.25	1666.16687	4.548268			2
4.51	4.56	4.57	93.72998	0.262284			4
4.60	4.61	4.66	1332.915283	3.910792			5
Height Summation:			3728.055907				
Amount Avg CF:			2.687906	Linear:			
Aroclor-1248					4	91.92	
4.86	4.87	4.92	686.840942	1.218127			2
5.71	5.73	5.77	695.52417	1.857852			4
5.97	6.01	6.03	862.706177	3.434066			5
6.20	6.22	6.26	2241.352783	9.096768			6
Height Summation:			4486.424072				
Amount Avg CF:			3.901703	Linear:			
Aroclor-1254					4	131.35	
5.40	5.44	5.46	14308.78125	15.374677			1
5.71	5.73	5.77	695.52417	0.658723			3
5.97	6.01	6.03	862.706177	1.111643			4
6.20	6.22	6.26	2241.352783	3.854698			5
Height Summation:			18108.364380				
Amount Avg CF:			5.249935	Linear:			
Aroclor-1260					4	66.34	
5.86	5.88	5.92	1592.157104	2.062166			1
+ 6.10	6.12	6.16	895.143127	0.938158			2
6.10	6.15	6.16	1126.870728	1.181021			2
6.60	6.63	6.66	1436.505005	1.965338			4
7.16	7.21	7.22	115.97863	0.145304			6
Height Summation:			4271.511467				
Amount Avg CF:			1.338457	Linear:			

Analysis Report (B)

Injected on : MAR 29, 2011 17:04:15
Instrument : CP13--H6722B
Result file : 1P13088B.42R
Calibration file : 1P13088B.CAL
Method file : PESTDB.MET

%SSR(TCX) : 69.4% (28-121) Conc.: 7.232365
%SSR(DCB) : 87.4% (45-150) Conc.: 9.107546

Min	R.T.	Max	Height	Amount	Pks	%RSD	Peak
Aroclor-1016					4	52.66	
* 4.04	4.10	4.10	368.870453	0.607224			3
* 4.10	4.10	4.16	368.870453	1.214568			4
4.29	4.30	4.35	191.73674	1.424705			5
4.45	4.48	4.51	527.655273	2.396255			6
Height Summation:			1457.132919				
Amount Avg CF:			1.410688	Linear:			
Aroclor-1221					2	141.27	
3.15	3.15	3.21	132.370544	1.411727			1
E 3.24	3.26	3.30	164119.3593	2573.81572			2
Height Summation:			164251.729919				
Amount Avg CF:			1287.613724	Linear:			
Aroclor-1232					4	56.26	
* 4.04	4.10	4.10	368.870453	1.353405			3
* 4.10	4.10	4.16	368.870453	2.86279			4
4.30	4.30	4.36	191.73674	3.493427			5
4.46	4.48	4.52	527.655273	5.974358			6
Height Summation:			1457.132919				
Amount Avg CF:			3.420995	Linear:			
Aroclor-1242					4	51.67	
* 4.04	4.10	4.10	368.870453	0.730733			3
* 4.10	4.10	4.16	368.870453	1.500388			4
4.30	4.30	4.36	191.73674	1.773616			5
4.46	4.48	4.51	527.655273	2.878172			6
Height Summation:			1457.132919				
Amount Avg CF:			1.720727	Linear:			
Aroclor-1248					5	202.48	
4.04	4.10	4.10	368.870453	1.122586			1
4.46	4.48	4.51	527.655273	1.624279			2
4.78	4.80	4.84	313.041595	0.603564			3
5.27	5.29	5.33	9227.738281	49.663563			4
5.75	5.78	5.81	109.709465	0.717266			6
Height Summation:			10547.015067				
Amount Avg CF:			10.746252	Linear:			
Aroclor-1254					4	180.50	
4.78	4.80	4.84	313.041595	0.622359			1
5.27	5.29	5.33	9227.738281	15.912308			3
5.75	5.78	5.81	109.709465	0.327698			5
5.85	5.89	5.91	175.525192	0.307615			6
Height Summation:			9826.014533				
Amount Avg CF:			4.292495	Linear:			
Aroclor-1260					5	76.67	
5.39	5.45	5.45	192.289093	0.420497			1
5.56	5.62	5.62	546.34613	0.904696			2
5.85	5.89	5.91	175.525192	0.266857			3
6.11	6.16	6.17	828.854492	1.685075			4
6.63	6.68	6.69	381.37384	0.468438			6
Height Summation:			2124.388747				
Amount Avg CF:			0.749113	Linear:			

* Peak found within more than one window
+Duplicate Peak in window - not included in average
Printed on: 3/30/2011 10:54:02

Lancaster Laboratories Multiple Component Peak Data Report

Sample Name: BLANKA 3/25/11G PBLK07084 Sample ID: AB **Batchnumber: 110840007A**
Sample Amount: 30 g Total Volume: 10 ml Analyst: 2131 SDG: State:
Analyses: 01363

Analysis Report (A)

Injected on : MAR 29, 2011 17:04:15
Instrument : CP13--H6722A
Result file : 1P13088.42R
Calibration file : 1P13088.CAL
Method file : PESTD.MET

Min	R.T.	Max	Height	Amount	Pks	%RSD	Peak
Chlordane					5	139.19	
4.35	4.36	4.42	466.394714	0.587633			1
4.54	4.56	4.60	93.72998	0.085002			2
4.81	4.87	4.87	686.840942	1.005117			3
5.42	5.44	5.48	14308.78125	5.457018			4
5.49	5.55	5.55	2258.913818	0.749694			5
Height Summation:			17814.660704				
Amount Avg CF:			1.576893	Linear:			
Toxaphene					6	101.53	
6.21	6.22	6.27	2241.352783	5.125325			1
6.39	6.42	6.45	736.554932	1.277933			2
6.47	6.51	6.53	1153.46106	2.362843			3
6.74	6.76	6.80	3232.138916	9.337211			4
6.84	6.87	6.90	951.963928	1.336816			5
7.19	7.21	7.25	115.97863	0.456766			6
Height Summation:			8431.450249				
Amount Avg CF:			3.316149	Linear:			

Analysis Report (B)

Injected on : MAR 29, 2011 17:04:15
Instrument : CP13--H6722B
Result file : 1P13088B.42R
Calibration file : 1P13088B.CAL
Method file : PESTDB.MET

Min	R.T.	Max	Height	Amount	Pks	%RSD	Peak
Chlordane					6	85.90	
3.87	3.93	3.93	480.625488	1.269533			1
4.03	4.03	4.09	2446.660156	4.58196			2
4.39	4.40	4.45	246.115585	0.59012			3
4.95	4.99	5.01	1857.291748	1.334743			4
4.99	5.04	5.05	801.700745	0.607139			5
+ 5.78	5.78	5.84	109.709465	0.266762			6
5.78	5.82	5.84	845.419861	2.055668			6
Height Summation:			6677.813583				
Amount Avg CF:			1.739861	Linear:			
Toxaphene					3	80.02	
+ 5.77	5.78	5.83	109.709465	0.496918			1
5.77	5.82	5.83	845.419861	3.829246			1
5.84	5.89	5.90	175.525192	1.056938			2
6.26	6.29	6.32	183.285294	1.084791			3
Height Summation:			1204.230347				
Amount Avg CF:			1.990325	Linear:			

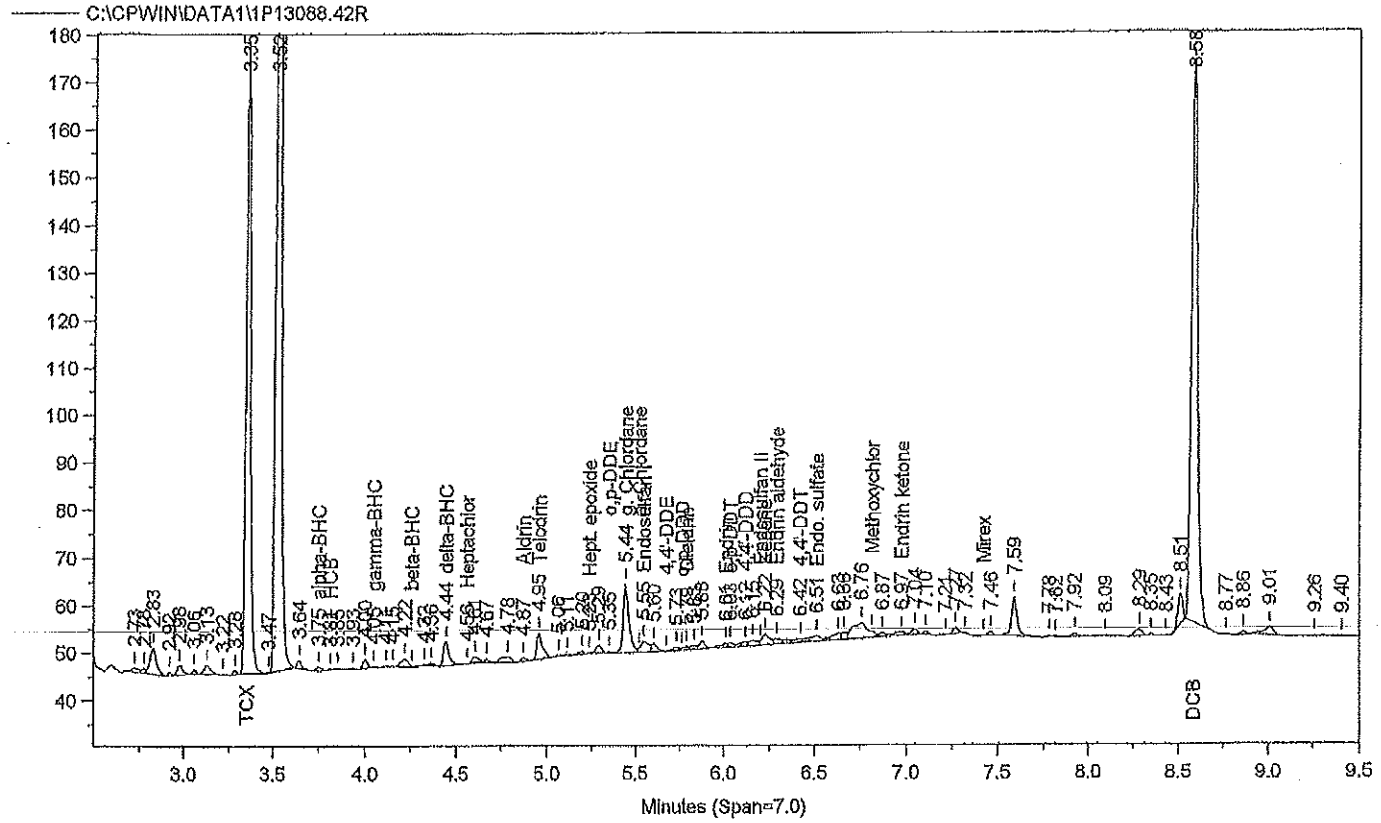
Summary Report

Compound Name	Column	Higher Amount Found	LOQ	MDL	Qualifiers	%Difference	No of Hits Required	Max %RSD	Comments
Aroclor-1016			0	0		**46.66	4	40	
Aroclor-1221			0	0		**198.04	3	5	
Aroclor-1232			0	0		25.07	4	10	
Aroclor-1242			0	0		**43.88	4	30	
Aroclor-1248			0	0		**93.45	4	30	
Aroclor-1254			0	0		20.07	4	40	
Aroclor-1260			0	0		**56.46	4	40	
Chlordane			17	4		9.83	2	20	
Toxaphene			33	11		**49.97	4	30	

Units: ug/kg

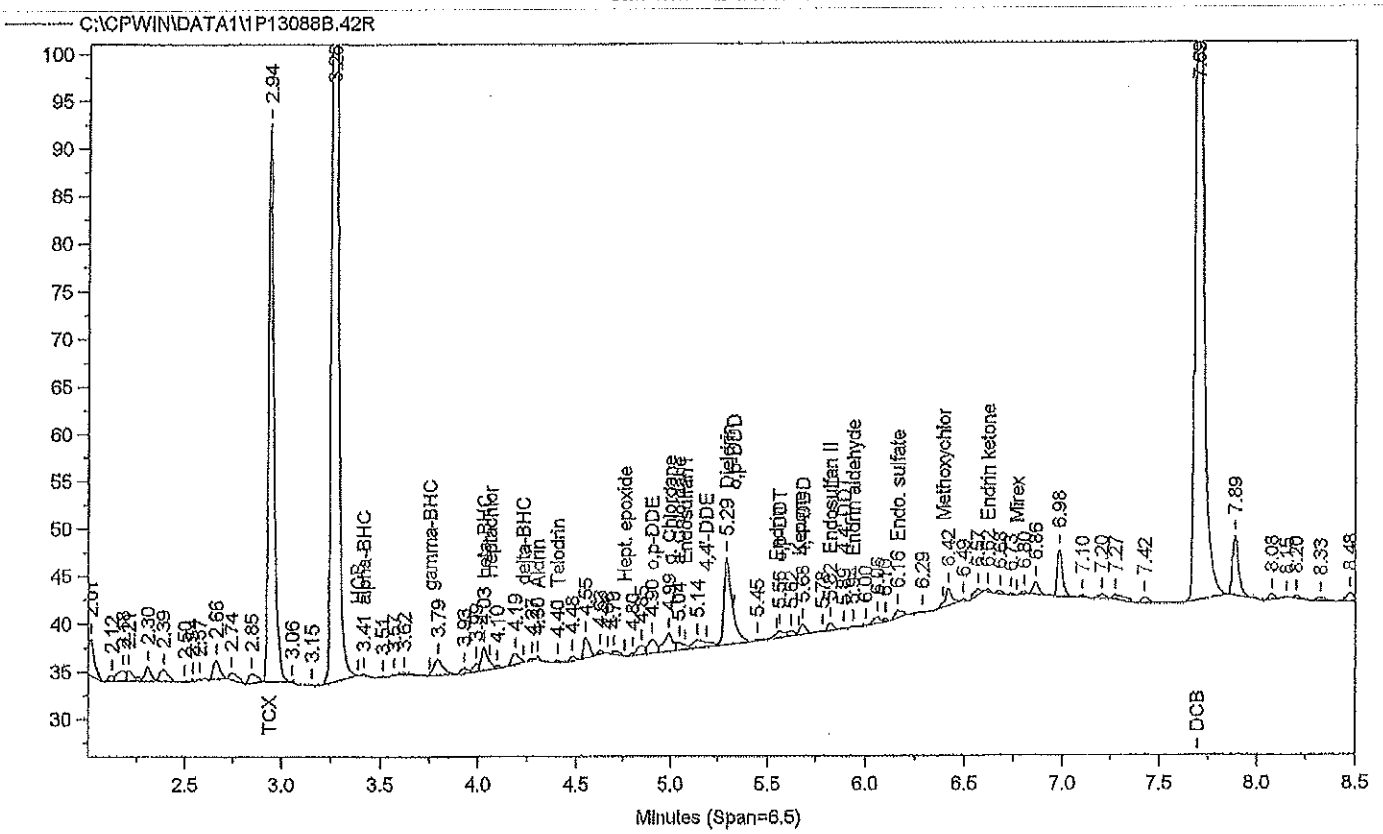
* Peak found within more than one window
+Duplicate Peak in window - not included in average
Printed on: 3/30/2011 10:54:02

LANCASTER LABORATORIES File: C:\CPWIN\DATA1\1P13088.42R



Instrument ID: CP13--H6722A Injected On: 3/29/2011 5:04:15 PM Column ID: ZB-MR1, 30M X 0.32MMx0.50UM

File: C:\CPWIN\DATA1\1P13088B.42R



Instrument ID: CP13--H6722B Injected On: 3/29/2011 5:04:15 PM Column ID: ZB-MR2, 30M X 0.32MM X 0.25UM

Oven Parameters: 140C AT 25\MIN TO 250, AT 20/MIN TO 300, hold 2.5 Volume Inj: 1

Detector A Parameters:
Threshold: 2 Width: 0.01 Area Reject: 0
Calibration Type: External Quantitation: Height

Detector B Parameters:
Threshold: 1 Width: 0.02 Area Reject: 0
Calibration Type: External Quantiation: Height

Sample Weight: 30 Dilution Factor: 10
Analyst: 2131

RT A	Height A	Amount A	Compound A	RT B	Height B	Amount B	Compound B
3.351	134190	7.35907	TCX	2.939	58900	7.23237	TCX
3.75	635	.02528	alpha-BHC	3.414	232	.02076	alpha-BHC
3.811	193	.00712	HCB	.	0	.	HCB
.	0	.	beta-BHC	4.031	2447	.38484	beta-BHC
4.049	306	.01296	gamma-BHC	.	0	.	gamma-BHC
4.87	687	.03492	Aldrin	4.301	192	.01863	Aldrin
4.954	5530	.28871	Telodrin	4.404	246	.02382	Telodrin
4.444	5036	.22557	delta-BHC	.	0	.	delta-BHC
4.563	94	.00401	Heptachlor	.	0	.	Heptachlor
5.349	340	.02786	o,p-DDE	4.901	1489	.19226	o,p-DDE
5.44	14309	.7166	g. Chlordane	4.991	1857	.16108	g. Chlordane
.	0	.	a. Chlordane	5.044	802	.06636	a. Chlordane
5.234	239	.01273	Hept. epoxide	.	0	.	Hept. epoxide
5.789	676	.03741	Dieldrin	5.292	9228	.81747	Dieldrin
5.546	2259	.11522	Endosulfan I	.	0	.	Endosulfan I
6.034	935	.07455	o,p-DDT	5.561	721	.08414	o,p-DDT
6.115	895	.06329	4,4'-DDD	5.681	1036	.11745	4,4'-DDD
.	0	.	Endosulfan II	5.821	845	.08036	Endosulfan II
6.42	737	.04797	4,4'-DDT	5.89	176	.01691	4,4'-DDT
6.287	1124	.07926	Endrin aldehyde	5.937	181	.01937	Endrin aldehyde
6.007	863	.05296	Endrin	.	0	.	Endrin
6.51	1153	.07549	Endo. sulfate	6.161	829	.07991	Endo. sulfate
6.224	2241	.85982	Kepone	.	0	.	Kepone
6.975	729	.04039	Endrin ketone	6.619	330	.02456	Endrin ketone
8.582	117950	8.81212	DCB	7.693	94703	9.10755	DCB

Files:
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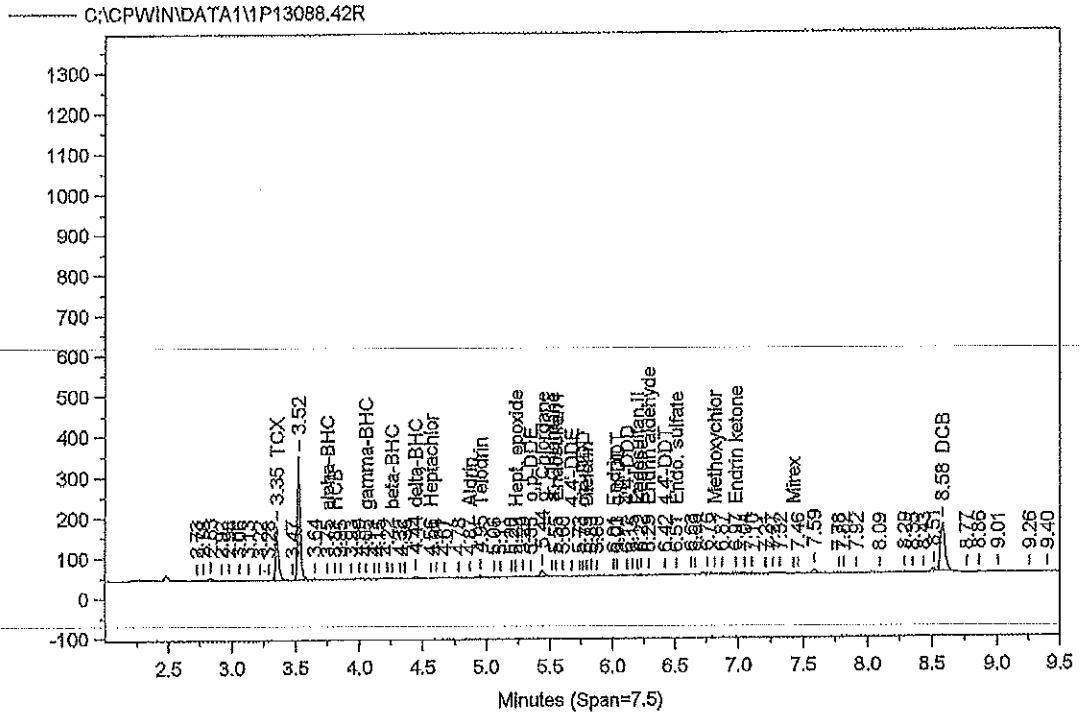
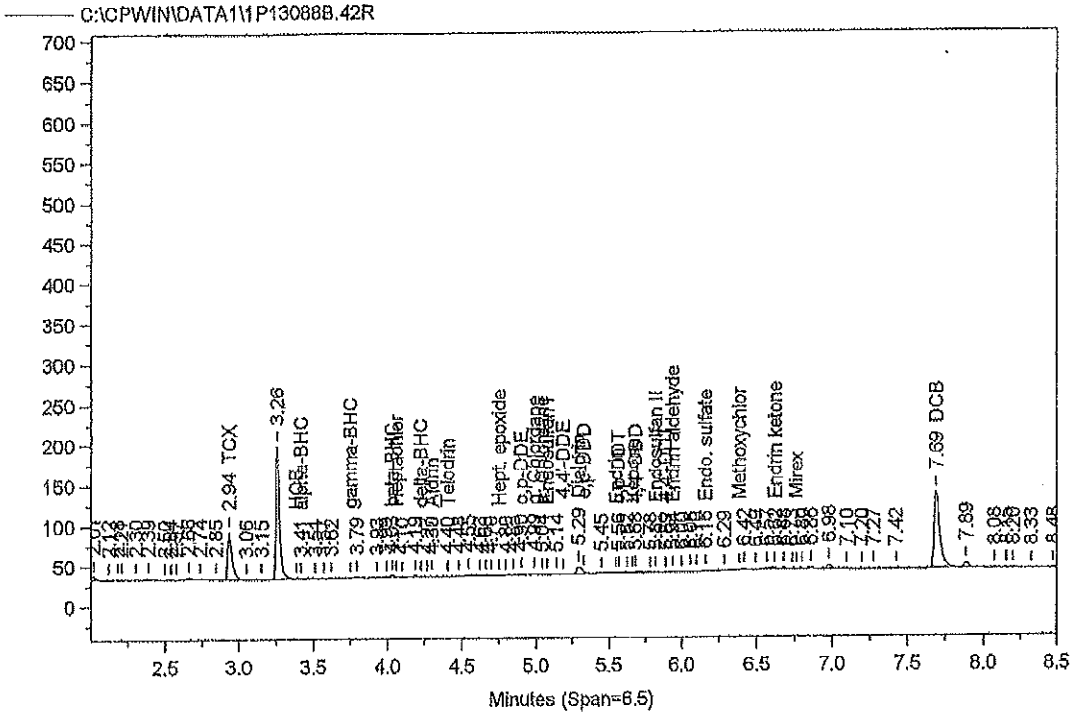
Area File: C:\CPWIN\DATA1\1P13088B.42A
Method A: C:\CPWIN\DATA1\PESTD.MET
Method B: C:\CPWIN\DATA1\PESTDB.MET
Calibration File A: C:\CPWIN\DATA1\1P13088.CAL
Calibration File B: C:\CPWIN\DATA1\1P13088B.CAL
Format A: C:\CPWIN\DATA1\PESTD.FMTA
Format B: C:\CPWIN\DATA1\PESTD.FMTB
Area File Created On: 3/29/2011 5:13:50 PM
File Reported On: 3/29/2011 at 5:13:56 PM

Files:

REPLOTS





LLI Pesticide Site Specific Phase 3
Method Blank Raw Data
SDG PH046
(See Table 4b)

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Quality Control Summary
Method Blank
Pesticide Residue Analysis
SDG: PH046
Matrix: SOLID

Fraction: Pesticides

131620099A / PBLK07162 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Alpha BHC	06/20/13	N.D.	ug/kg	0.17	0.83
Gamma BHC - Lindane	06/20/13	N.D.	ug/kg	0.17	0.83
Beta BHC	06/20/13	N.D.	ug/kg	0.96	1.9
Delta BHC	06/20/13	N.D.	ug/kg	0.45	0.83
Heptachlor	06/20/13	N.D.	ug/kg	0.17	0.83
Aldrin	06/20/13	N.D.	ug/kg	0.17	0.83
Heptachlor Epoxide	06/20/13	N.D.	ug/kg	0.17	0.83
p,p-DDE	06/20/13	N.D.	ug/kg	0.33	1.7
Endosulfan I	06/20/13	N.D.	ug/kg	0.22	0.83
Dieldrin	06/20/13	N.D.	ug/kg	0.33	1.7
Endrin	06/20/13	N.D.	ug/kg	0.33	1.7
p,p-DDD	06/20/13	N.D.	ug/kg	0.33	1.7
Endosulfan II	06/20/13	N.D.	ug/kg	0.33	1.7
p,p-DDT	06/20/13	N.D.	ug/kg	0.35	1.7
Endosulfan Sulfate	06/20/13	N.D.	ug/kg	0.33	1.7
Endrin Aldehyde	06/20/13	N.D.	ug/kg	0.33	1.7
Endrin Ketone	06/20/13	N.D.	ug/kg	0.60	1.8
Methoxychlor	06/20/13	N.D.	ug/kg	1.7	6.7
Mirex	06/20/13	N.D.	ug/kg	0.35	1.7
Chlordane	06/20/13	N.D.	ug/kg	4.0	17
Toxaphene	06/20/13	N.D.	ug/kg	14	33

LLI PCB Site Specific Phase 1
Method Blank Raw Data
SDG DE216
(See Table 4b)

Lancaster Laboratories

Quality Control Summary
Method Blank
Pesticide Residue Analysis
SDG: DE216
Matrix: SOLID

Fraction: Polychlorinated Biphenyls (PCBs)

112270031 / PBLK31227 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
PCB-1016	08/18/11	N.D.	ug/kg	0.33	1.7
PCB-1221	08/18/11	N.D.	ug/kg	0.33	1.7
PCB-1232	08/18/11	N.D.	ug/kg	0.33	1.7
PCB-1242	08/18/11	N.D.	ug/kg	0.33	1.7
PCB-1248	08/18/11	N.D.	ug/kg	0.33	1.7
PCB-1254	08/18/11	N.D.	ug/kg	0.33	1.7
PCB-1260	08/18/11	N.D.	ug/kg	0.39	1.7
PCB-1262	08/18/11	N.D.	ug/kg	0.33	1.7
PCB-1268	08/18/11	N.D.	ug/kg	0.33	1.7
Aroclor 5432	08/18/11	N.D.	ug/kg	1.0	3.3
Aroclor 5442	08/18/11	N.D.	ug/kg	1.0	3.3
Aroclor 5460	08/18/11	N.D.	ug/kg	1.0	3.3

Phase 1
PCB

DE216 1184

LLI PCB Non Site Specific Method Blank Raw Data SDG 110560006 (See Table 4b)

Organic Extraction Batchlog Assigned to: 504 Sally Appleyard

Reviewed by: [illegible] Start Date: 2/25/11 Start time: 1040

110560006A

Tech 1: SA~524 Tech 2: _____

Dept: 24 Prep Analysis: 00819 Solid Sample Pesticide Extract PCBs in Solids

QC	Sample Code	Amt	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
6211396MSD	1030AMSD	30	SS1103324A	1.0	MS1103824A	1.0	10	—	—	20	Moist, Tacky
6211396MS	1030AMS	31	SS1103324A	1.0	MS1103824A	1.0	10	—	—	20	Sticky
BLANKA	PBLK06056	32	SS1103324A	1.0			10	—	—		
LCSA	LCS06056	33	SS1103324A	1.0	MS1103824A	1.0	10	—	—		

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	185022HA
Filter Paper	390227
Hexane	345345
Sodium Sulfate	105511A

Spike Solutions: Witness: NA

MS1103824A PCB SPIKE

SS1103324A SW846 SURROGATE STANDARD

@ Sonicator 2/25/11

Sample #	Sample Code	Amt	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	Due Date	Prio
1 6211396 Cu	1030A	30	SS1103324A	1.0	10	—	—	20	Moist, Tacky, Sticky	01216	03/03/2011	S
2 6212335	PPA08	31	SS1103324A	1.0	10	—	—	20	Moist Clumpy	10225	03/04/2011	N

SCM 2/25/11

Rack ID:		Work Station	SCM5	S-bath ID 2	95 C	S-bath ID	C	N-Evap	C	M-vap	C	110560006A
Internal Standard		Balance #	0410									

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Multiple Component Data Summary

Sample Name: BLANKA 2/25/11ACF PBLK06056 BLK Sample ID: AB **Batchnumber:** 110560006A
Sample Amount: 30 g Total Volume: 10 ml Analyst: 2017 SDG: State:
Analyses: 01216 10225

Analysis Report (A)

Injected on	Mar 01, 2011 19:04:02
Instrument	H5088A
Result file	4P7056.28R
Calibration file	1P7056
Method file	PESTD

%SSR(TCX)	99.7%	Conc:	10.38642
%SSR(DCB)	112.0%	Conc:	11.67335

Analysis Report (B)

Injected on	Mar 01, 2011 19:04:02
Instrument	H5088B
Result file	4P7056B.28R
Calibration file	1P7056B
Method file	PESTDB

%SSR(TCX)	100.8%	Conc:	10.50271
%SSR(DCB)	104.2%	Conc:	10.86668

Summary Report

Compound Name	Column	Amount Found	LOQ	MDL	Qualifiers	%Difference	No. of Hits Required	Max %RSD	Comments
Aroclor-1016			<17	<3.3			4	15	
Aroclor-1221			<17	<3.3			3	5	
Aroclor-1232			<17	<3.3			4	10	
Aroclor-1242			<17	<3.3			4	30	
Aroclor-1248			<17	<3.3			4	30	
Aroclor-1254			<17	<3.3			4	40	
Aroclor-1260			<17	<3.9			4	40	
Aroclor-1262			<17	<3.3			4	40	
Aroclor-1268			<17	<3.3			4	40	
Total PCBs			<17	<3.3					

Units: ug/kg

%Difference = High - Low divided by the Average times 100

Andrea J Covey

Reviewed by: [signature] Verified by: MAR 02 2011

Date: 3.2.11 Date:

Andrea J. Covey
Senior Specialist

Lancaster Laboratories Multiple Component Peak Data Report

Sample Name: BLANKA 2/25/11ACF PBLK06056 Sample ID: AB **Batchnumber: 110560006A**
Sample Amount: 30 g Total Volume: 10 ml Analyst: 2017 SDG: State:
Analyses: 01216 10225

Analysis Report (A)

Injected on : MAR 01, 2011 19:04:02
Instrument : CP07--H5088A
Result file : 4P7056.28R
Calibration file : 1P7056.CAL
Method file : PESTD.MET
%SSR(TCX) : 99.7% (53-139) Conc.: 10.386428
%SSR(DCB) : 112% (53-133) Conc.: 11.673356

Min	R.T.	Max	Height	Amount	Pks	%RSD	Peak
Aroclor-1016					2	108.13	
4.34	4.38	4.40	1861.967041	5.288396			3
4.58	4.60	4.64	44.041412	0.705514			6
Height Summation:			1906.008453				
Amount Avg CF:			2.998955	Linear:			
Aroclor-1221					1		
3.51	3.52	3.57	1421.945557	24.207449			2
Height Summation:			1421.945557				
Amount Avg CF:			24.207449	Linear:			
Aroclor-1232					2	101.49	
4.34	4.38	4.40	1861.967041	10.129846			3
4.58	4.60	4.64	44.041412	1.665397			6
Height Summation:			1906.008453				
Amount Avg CF:			5.897622	Linear:			
Aroclor-1242					2	108.06	
4.34	4.38	4.40	1861.967041	5.128962			3
4.58	4.60	4.64	44.041412	0.685843			6
Height Summation:			1906.008453				
Amount Avg CF:			2.907403	Linear:			
Aroclor-1248					5	96.60	
4.34	4.38	4.40	1861.967041	9.022968			1
4.58	4.60	4.64	44.041412	0.403911			2
4.61	4.66	4.68	350.070465	3.411175			3
4.75	4.77	4.81	199.091751	1.094811			4
5.62	5.63	5.68	397.227631	3.599387			6
Height Summation:			2852.398300				
Amount Avg CF:			3.50645	Linear:			
Aroclor-1254					3	82.25	
5.62	5.63	5.68	397.227631	1.201202			2
6.13	6.16	6.19	434.499298	2.076806			5
6.27	6.32	6.33	54.21254	0.181645			6
Height Summation:			885.939469				
Amount Avg CF:			1.163218	Linear:			
Aroclor-1260					3	98.29	
6.27	6.32	6.33	54.21254	0.151539			3
6.35	6.38	6.41	431.7052	1.52133			4
7.11	7.16	7.17	176.251389	0.500057			6
Height Summation:			662.169129				
Amount Avg CF:			0.724309	Linear:			
Aroclor-1262					2	61.74	
6.35	6.38	6.41	431.7052	0.877985			1
7.11	7.16	7.17	176.251389	0.344345			4
Height Summation:			607.956589				
Amount Avg CF:			0.611165	Linear:			
Aroclor-1268					4	165.64	
7.10	7.16	7.16	176.251389	0.158757			1
7.37	7.39	7.43	309.223663	0.347509			3
7.47	7.52	7.53	961.826256	4.45104			4
8.14	8.16	8.20	349.278778	0.155446			6
Height Summation:			1796.579086				
Amount Avg CF:			1.278188	Linear:			

Analysis Report (B)

Injected on : MAR 01, 2011 19:04:02
Instrument : CP07--H5088B
Result file : 4P7056B.28R
Calibration file : 1P7056B.CAL
Method file : PESTDB.MET
%SSR(TCX) : 100.8% (53-139) Conc.: 10.502718
%SSR(DCB) : 104.2% (53-133) Conc.: 10.866687

Min	R.T.	Max	Height	Amount	Pks	%RSD	Peak
Aroclor-1016					2	123.53	
3.80	3.85	3.86	3970.316162	15.645814			3
4.20	4.25	4.26	246.727142	1.056364			6
Height Summation:			4217.043304				
Amount Avg CF:			8.351089	Linear:			
Aroclor-1221					2	127.95	
3.14	3.18	3.20	136.340591	0.796894			1
3.23	3.24	3.29	2031.639526	15.938178			2
Height Summation:			2167.980117				
Amount Avg CF:			8.367536	Linear:			
Aroclor-1232					2	123.66	
3.80	3.85	3.86	3970.316162	32.338148			3
4.20	4.25	4.26	246.727142	2.167125			6
Height Summation:			4217.043304				
Amount Avg CF:			17.252637	Linear:			
Aroclor-1242					2	122.74	
3.80	3.85	3.86	3970.316162	14.375047			3
4.20	4.25	4.26	246.727142	1.016719			6
Height Summation:			4217.043304				
Amount Avg CF:			7.695883	Linear:			
Aroclor-1248					4	100.45	
4.29	4.33	4.35	971.633301	4.74606			3
*4.81	4.82	4.87	88.784134	0.436716			5
*4.78	4.82	4.84	88.784134	0.338523			4
5.28	5.32	5.34	1044.927368	5.683024			6
Height Summation:			2194.128937				
Amount Avg CF:			2.800831	Linear:			
Aroclor-1254					3	73.57	
4.78	4.82	4.84	88.784134	0.204302			1
5.28	5.32	5.34	1044.927368	1.97505			2
5.89	5.92	5.95	720.720947	1.845008			6
Height Summation:			1854.432449				
Amount Avg CF:			1.341453	Linear:			
Aroclor-1260					3	87.45	
5.88	5.92	5.94	720.720947	2.826051			4
6.16	6.22	6.22	691.994202	2.103224			5
6.39	6.45	6.45	30.907196	0.036774			6
Height Summation:			1443.622345				
Amount Avg CF:			1.65535	Linear:			
Aroclor-1262					2	135.73	
6.16	6.22	6.22	691.994202	1.526722			3
6.40	6.45	6.46	30.907196	0.031371			4
Height Summation:			722.901398				
Amount Avg CF:			0.779047	Linear:			
Aroclor-1268					3	109.61	
6.66	6.70	6.72	379.686432	0.36468			1
+6.99	7.00	7.05	48.063976	0.240687			4
6.99	7.02	7.05	274.558472	1.374889			4
7.49	7.52	7.55	309.950684	0.100941			6
Height Summation:			964.195588				
Amount Avg CF:			0.613503	Linear:			

* Peak found within more than one window
+Duplicate Peak in window - not included in average

Printed on: 3/2/2011 07:18:29

Lancaster Laboratories-Multiple Component Peak Data Report

Sample Name: BLANKA 2/25/11ACF PBLK06056Sample ID: AB **Batchnumber: 110560006A**
Sample Amount: 30 g Total Volume: 10 ml Analyst: 2017 SDG: State:
Analyses:01216 10225

Analysis Report (A)

Injected on : MAR 01, 2011 19:04:02
Instrument : CP07--H5088A
Result file : 4P7056.28R
Calibration file : 1P7056.CAL
Method file : PESTD.MET

Analysis Report (B)

Injected on : MAR 01, 2011 19:04:02
Instrument : CP07--H5088B
Result file : 4P7056B.28R
Calibration file : 1P7056B.CAL
Method file : PESTDB.MET

Summary Report

Compound Name	Column	Higher Amount Found	LOQ	MDL	Qualifiers	%Difference	No of Hits Required	Max %RSD	Comments
Aroclor-1016			17	3.3		** 94.36	4	15	
Aroclor-1221			17	3.3		** 97.25	3	6	
Aroclor-1232			17	3.3		** 98.10	4	10	
Aroclor-1242			17	3.3		** 90.32	4	30	
Aroclor-1248			17	3.3		22.37	4	30	
Aroclor-1254			17	3.3		15.09	4	40	
Aroclor-1260			17	3.9		** 78.25	4	40	
Aroclor-1262			17	3.3		24.16	4	40	
Aroclor-1268			17	3.3		** 70.27	4	40	
Total PCB			17	3.3					

Units: ug/kg

* Peak found within more than one window
+Duplicate Peak in window - not included in average

Printed on: 3/2/2011 07:18:29

Sample Name: **BLANKA 2/25/11ACF ABPBLK06056 BLK 110560006A 01216**
Acquired from CP07--H5088A via port 3 on 3/1/11 07:13:10pm by 2017
ZB-MutiResidue-1 30m x 0.32mm x 0.5um
140 - 300 @ 10C/min
Data File: **C:\CPWIN\DATA1\4P7056.28R**
Method File: C:\CPWIN\DATA1\PESTD.MET
Calibration File: C:\CPWIN\DATA1\1P7056.CAL

PK#	Ret Time	Name	Amount	Amount%	Area	Area%	Type	Width	Height	Height%
1	1.511		0.0000	0.000	1021.1	0.206	BB	0.035	485.07	0.239
2	1.600		0.0000	0.000	1923.0	0.388	BB	0.033	968.95	0.477
3	1.673		0.0000	0.000	1238.5	0.250	BB	0.033	629.44	0.310
4	1.967		0.0000	0.000	1663.7	0.335	BV	0.038	733.75	0.361
5	2.076		0.0000	0.000	371.4	0.075	VB	0.023	272.41	0.134
6	2.143		0.0000	0.000	29516.2	5.950	BV	0.031	15962.83	7.864
7	2.253		0.0000	0.000	4124.3	0.831	VV	0.067	1025.29	0.505
8	2.358		0.0000	0.000	11985.5	2.416	VV	0.071	2813.15	1.386
9	2.473		0.0000	0.000	19859.7	4.003	VB	0.031	10656.69	5.250
10	2.712		0.0000	0.000	3400.9	0.686	BB	0.034	1658.65	0.817
11	2.961		0.0000	0.000	1948.9	0.393	BB	0.026	1266.29	0.624
12	3.015		0.0000	0.000	236.6	0.048	BB	0.041	96.99	0.048
13	3.151		0.0000	0.000	105.7	0.021	BB	0.021	85.12	0.042
14	3.222 TCX		311.5928	47.083	151645.4	30.567	BB	0.031	81445.65	40.122
15	3.517		0.0000	0.000	7486.2	1.509	BB	0.088	1421.95	0.700
16	3.709		0.0000	0.000	116.6	0.023	BB	0.020	97.56	0.048
17	3.795		0.0000	0.000	986.7	0.199	BB	0.094	175.51	0.086
18	3.977		0.0000	0.000	645.6	0.130	BB	0.059	181.31	0.089
19	4.034		0.0000	0.000	1789.0	0.361	BB	0.036	817.90	0.403
20	4.207		0.0000	0.000	2912.8	0.587	BB	0.027	1808.41	0.891
21	4.316		0.0000	0.000	980.6	0.198	BB	0.032	516.70	0.255
22	4.380		0.0000	0.000	8402.3	1.694	BB	0.075	1861.97	0.917
23	4.600		0.0000	0.000	76.4	0.015	BB	0.029	44.04	0.022
24	4.655		0.0000	0.000	1056.3	0.213	BB	0.050	350.07	0.172
25	4.775		0.0000	0.000	565.6	0.114	BB	0.047	199.09	0.098
26	4.858		0.0000	0.000	1088.4	0.219	BB	0.060	303.62	0.150
27	5.179		0.0000	0.000	21747.8	4.384	BB	0.100	3617.58	1.782
28	5.377		0.0000	0.000	586.9	0.118	BB	0.045	219.50	0.108
29	5.453		0.0000	0.000	2919.8	0.589	BB	0.046	1048.70	0.517
30	5.628		0.0000	0.000	1034.0	0.208	BB	0.043	397.23	0.196
31	5.770		0.0000	0.000	401.7	0.081	BB	0.052	129.82	0.064
32	5.890		0.0000	0.000	488.6	0.098	BB	0.033	247.76	0.122
33	5.954		0.0000	0.000	1412.8	0.285	BB	0.059	398.52	0.196
34	6.162		0.0000	0.000	890.3	0.179	BB	0.034	434.50	0.214
35	6.234		0.0000	0.000	617.4	0.124	BB	0.048	214.66	0.106
36	6.324		0.0000	0.000	67.1	0.014	BB	0.021	54.21	0.027
37	6.379		0.0000	0.000	824.3	0.166	BB	0.032	431.71	0.213
38	6.633		0.0000	0.000	300.0	0.060	BB	0.056	88.93	0.044
39	6.712		0.0000	0.000	1496.0	0.302	BB	0.049	511.10	0.252
40	6.818		0.0000	0.000	2408.9	0.486	BB	0.066	607.95	0.299
41	6.944		0.0000	0.000	142.6	0.029	BB	0.032	73.73	0.036
42	6.997		0.0000	0.000	541.8	0.109	BB	0.039	234.00	0.115
43	7.164		0.0000	0.000	1124.2	0.227	BB	0.106	176.25	0.087
44	7.394		0.0000	0.000	495.6	0.100	BB	0.027	309.22	0.152
45	7.519		0.0000	0.000	7418.2	1.495	BB	0.129	961.83	0.474
46	7.919		0.0000	0.000	2638.7	0.532	BB	0.221	198.67	0.098
47	8.016		0.0000	0.000	2699.6	0.544	BB	0.109	414.10	0.204
48	8.163		0.0000	0.000	685.6	0.138	BB	0.033	349.28	0.172
49	8.466 DCB		350.2007	52.917	186085.5	37.509	BB	0.047	65580.97	32.307
50	8.869		0.0000	0.000	3937.0	0.794	BB	0.158	414.33	0.204

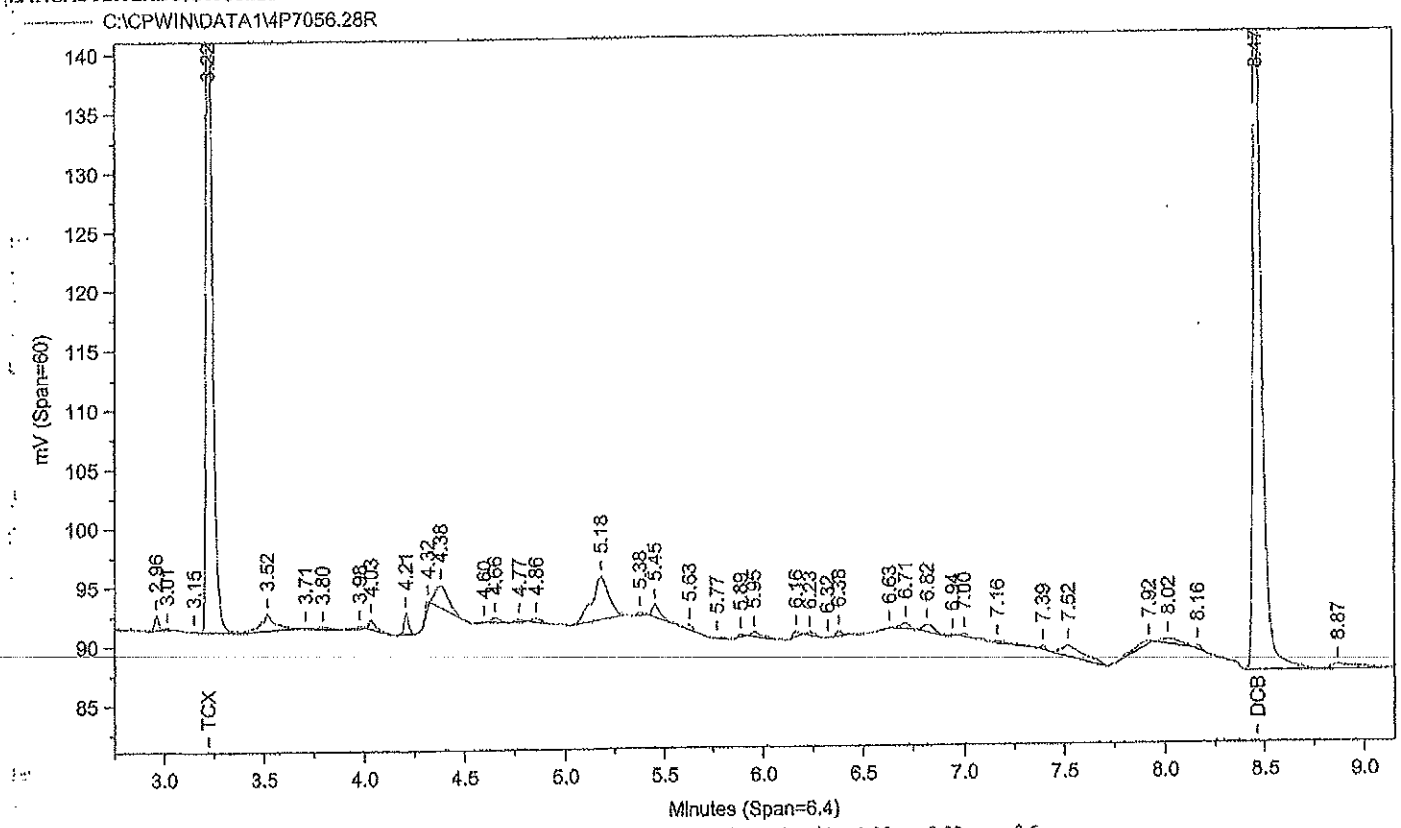
Total Area = 496112.0, Total Amount = 661.794, Total Height = 202993.0, Sample Units = ug/l

Sample Name: **BLANKA 2/25/11ACF ABPBLK06056 BLK 110560006A 01216**
Acquired from CP07--H5088B via port 4 on 3/1/11 07:13:10pm by 2017
ZB-MultiResidue-2 30m x 0.32mm x 0.25um
140 - 300 @ 10C/min
Data File: **C:\CPWIN\DATA1\4P7056B.28R**
Method File: C:\CPWIN\DATA1\PESTDB.MET
Calibration File: C:\CPWIN\DATA1\1P7056B.CAL

PK#	Ret Time	Name	Amount	Amount%	Area	Area%	Type	Width	Height	Height%
1	1.534		0.0000	0.000	3560.2	0.342	BB	0.053	1122.71	0.300
2	1.803		0.0000	0.000	5180.5	0.498	BV	0.035	2495.68	0.666
3	1.883		0.0000	0.000	1204.9	0.116	VV	0.036	563.65	0.150
4	1.944		0.0000	0.000	106416.3	10.225	VB	0.041	42879.66	11.442
5	2.075		0.0000	0.000	1018.9	0.098	BB	0.022	767.24	0.205
6	2.135		0.0000	0.000	715.8	0.069	BB	0.048	250.47	0.067
7	2.233		0.0000	0.000	74484.9	7.157	BB	0.043	28954.31	7.726
8	2.481		0.0000	0.000	956.1	0.092	BB	0.032	499.80	0.133
9	2.557		0.0000	0.000	291.6	0.028	BB	0.028	172.38	0.046
10	2.656		0.0000	0.000	1630.4	0.157	BB	0.021	1270.31	0.339
11	2.689		0.0000	0.000	2144.0	0.206	BB	0.022	1621.36	0.433
12	2.883		0.0000	0.000	136.8	0.013	BB	0.027	84.39	0.023
13	2.920 TCX		315.0815	49.148	377861.1	36.306	BB	0.037	170946.60	45.614
14	3.086		0.0000	0.000	2585.5	0.248	BB	0.042	1017.98	0.272
15	3.181		0.0000	0.000	153.0	0.015	BB	0.019	136.34	0.036
16	3.237		0.0000	0.000	4100.9	0.394	BB	0.034	2031.64	0.542
17	3.409		0.0000	0.000	691.5	0.066	BB	0.025	460.10	0.123
18	3.613		0.0000	0.000	4327.1	0.416	BB	0.073	988.35	0.264
19	3.697		0.0000	0.000	928.3	0.089	BB	0.017	891.72	0.238
20	3.850		0.0000	0.000	7394.1	0.710	BB	0.031	3970.32	1.059
21	3.967		0.0000	0.000	15863.6	1.524	BB	0.058	4548.25	1.214
22	4.246		0.0000	0.000	1372.1	0.132	BB	0.093	246.73	0.066
23	4.327		0.0000	0.000	15850.1	1.523	BB	0.272	971.63	0.259
24	4.629		0.0000	0.000	7057.7	0.678	BB	0.084	1408.02	0.376
25	4.730		0.0000	0.000	740.8	0.071	BB	0.040	312.11	0.083
26	4.820		0.0000	0.000	142.9	0.014	BB	0.027	88.78	0.024
27	4.899		0.0000	0.000	10040.6	0.965	BB	0.098	1708.09	0.456
28	5.136		0.0000	0.000	5258.4	0.505	BB	0.084	1044.69	0.279
29	5.256		0.0000	0.000	32.7	0.003	BB	0.019	29.19	0.008
30	5.320		0.0000	0.000	7273.3	0.699	BB	0.116	1044.93	0.279
31	5.576		0.0000	0.000	2620.3	0.252	BB	0.052	842.55	0.225
32	5.801		0.0000	0.000	147.1	0.014	BB	0.028	87.83	0.023
33	5.841		0.0000	0.000	745.0	0.072	BB	0.045	276.49	0.074
34	5.921		0.0000	0.000	1380.9	0.133	BB	0.032	720.72	0.192
35	6.217		0.0000	0.000	3082.4	0.296	BB	0.074	691.99	0.185
36	6.448		0.0000	0.000	1891.0	0.182	BB	1.020	30.91	0.008
37	6.478		0.0000	0.000	334.8	0.032	BB	0.030	188.07	0.050
38	6.577		0.0000	0.000	3157.0	0.303	BB	0.101	521.01	0.139
39	6.703		0.0000	0.000	880.8	0.085	BB	0.039	379.69	0.101
40	6.998		0.0000	0.000	1450.5	0.139	BB	0.503	48.06	0.013
41	7.017		0.0000	0.000	387.3	0.037	BB	0.024	274.56	0.073
42	7.410		0.0000	0.000	4839.2	0.465	BB	0.093	869.32	0.232
43	7.524		0.0000	0.000	628.6	0.060	BB	0.034	309.95	0.083
44	7.785 DCB		326.0006	50.852	328717.8	31.584	BB	0.058	94990.32	25.347
45	8.237		0.0000	0.000	15375.8	1.477	BB	0.306	837.66	0.224
46	8.744		0.0000	0.000	15156.6	1.456	BB	0.248	1020.01	0.272
47	8.954		0.0000	0.000	102.3	0.010	BB	0.054	31.81	0.008
48	8.971		0.0000	0.000	59.9	0.006	BB	0.021	48.54	0.013
49	9.084		0.0000	0.000	227.3	0.022	BB	0.090	42.05	0.011
50	9.138		0.0000	0.000	168.6	0.016	BB	0.112	25.15	0.007

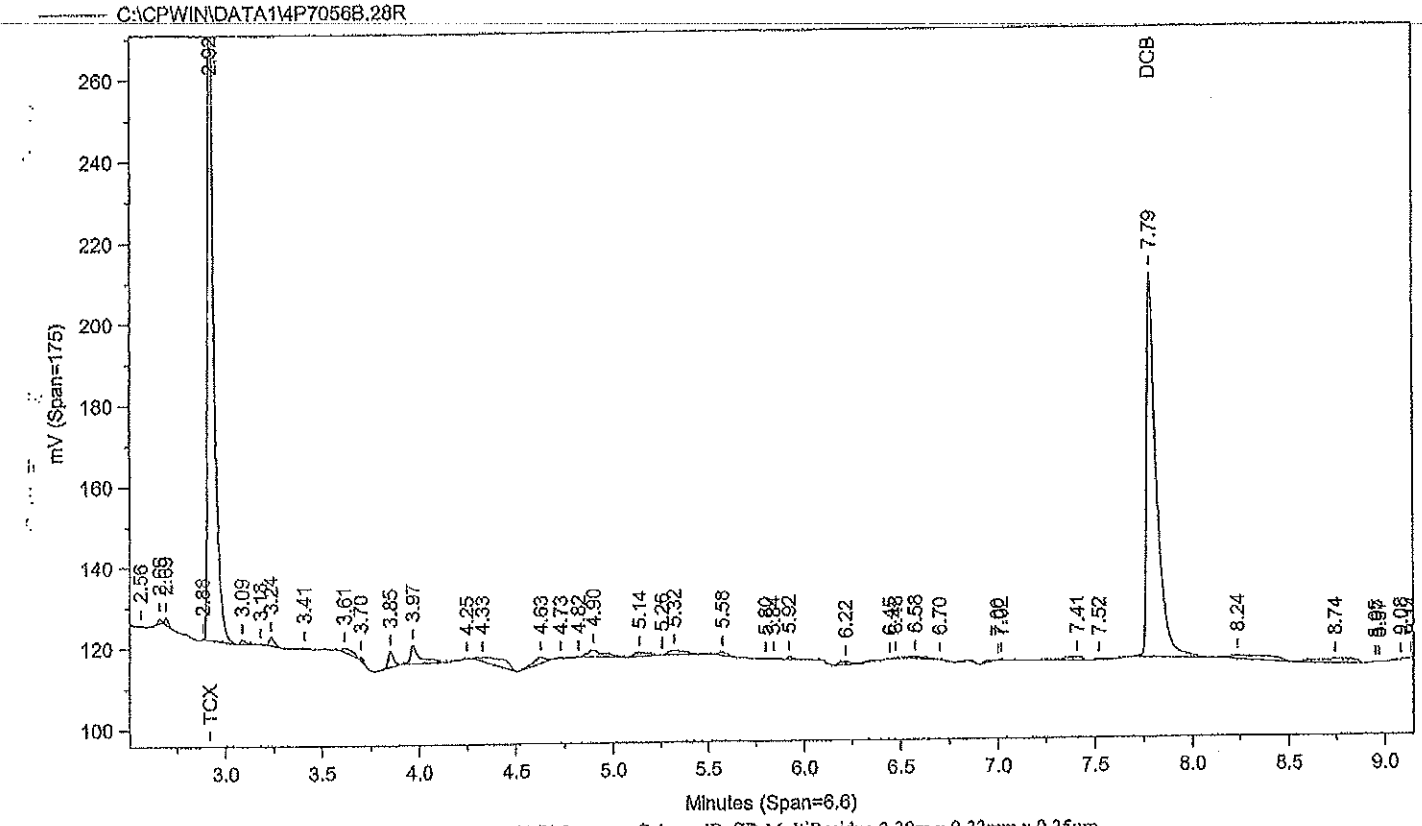
Total Area = 1040767.0, Total Amount = 641.082, Total Height = 374764.1, Sample Units = ug/l

LANCASTER LABORATORIES File: C:\CPWIN\DATA1\4P7056.28R



Instrument ID: CP07--H5088A Injected On: 3/1/2011 7:04:01 PM Column ID: ZB-MultiResidue-1 30m x 0.32mm x 0.5um

File: C:\CPWIN\DATA1\4P7056B.28R



Instrument ID: CP07--H5088B Injected On: 3/1/2011 7:04:01 PM Column ID: ZB-MultiResidue-2 30m x 0.32mm x 0.25um

Oven Parameters: 140 - 300 @ 10C/min

Volume Inj: 1

Detector A Parameters:
Threshold: 2 Width: 0.01
Calibration Type: External

Area Reject: 0
Quantitation: Height

Detector B Parameters:
Threshold: 0 Width: 0.03
Calibration Type: External

Area Reject: 0
Quantiation: Height

Sample Weight: 30
Analyst: 2017

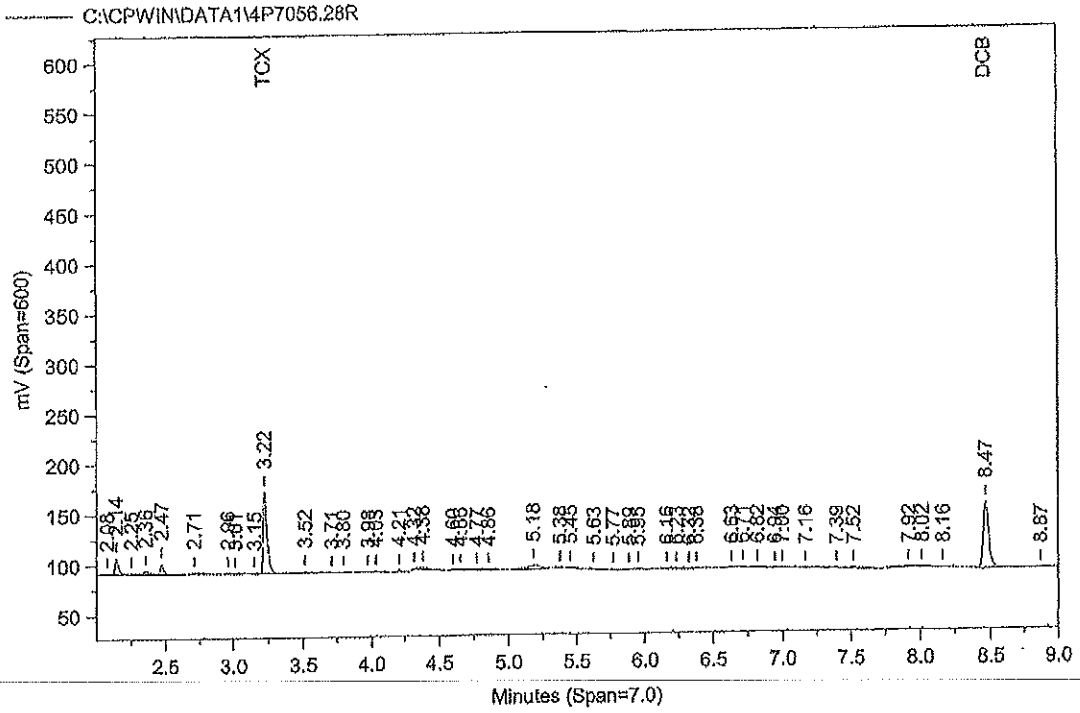
Dilution Factor: 10

RT A	Height A	Amount A	Compound A	RT B	Height B	Amount B	Compound B
3.222	81446	10.38643	TCX	2.92	170947	10.50272	TCX
8.466	65581	11.67336	DCB	7.785	94990	10.86669	DCB

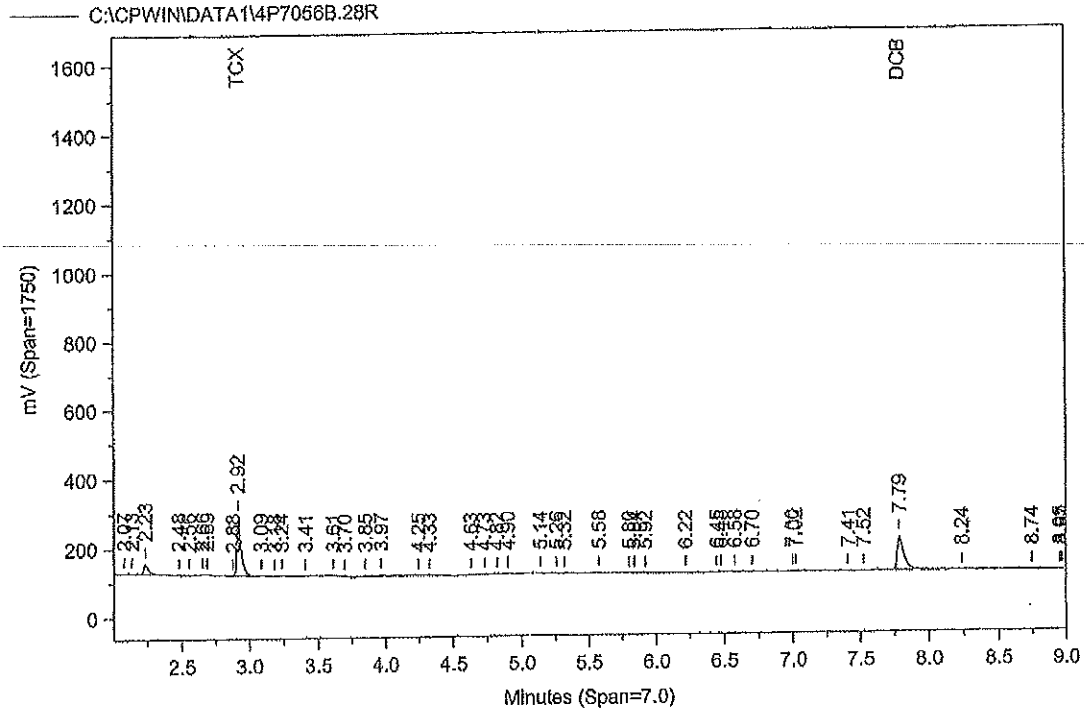
Files:
Area File: C:\CPWIN\DATA1\4P7056.28A
Area File: C:\CPWIN\DATA1\4P7056B.28A
Method A: C:\CPWIN\DATA1\PESTD.MET
Method B: C:\CPWIN\DATA1\PESTDB.MET
Calibration File A: C:\CPWIN\DATA1\1P7056.CAL
Calibration File B: C:\CPWIN\DATA1\1P7056B.CAL
Format A: C:\CPWIN\DATA1\PESTD.FMTA
Format B: C:\CPWIN\DATA1\PESTD.FMTB
Area File Created On: 3/1/2011 7:13:18 PM
File Reported On: 3/1/2011 at 7:13:30 PM

10X REPLOTS

C:\CPWIN\DATA1\4P7056.28R



C:\CPWIN\DATA1\4P7056B.28R



LLI PCB Site Specific Phase 3
Method Blank Raw Data
SDG PH046
(See Table 4b)

eurofins | Lancaster Laboratories

Quality Control Summary
Method Blank
Pesticide Residue Analysis
SDG: PH046
Matrix: SOLID

Fraction: Polychlorinated Biphenyls (PCBs)

131580010A / PBLK10158 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
PCB-1016	06/10/13	N.D.	ug/kg	3.3	17
PCB-1221	06/10/13	N.D.	ug/kg	5.1	17
PCB-1232	06/10/13	N.D.	ug/kg	4.1	17
PCB-1242	06/10/13	N.D.	ug/kg	4.1	17
PCB-1248	06/10/13	N.D.	ug/kg	3.3	17
PCB-1254	06/10/13	N.D.	ug/kg	4.4	17
PCB-1260	06/10/13	N.D.	ug/kg	3.9	17
PCB-1262	06/10/13	N.D.	ug/kg	3.3	17
PCB-1268	06/10/13	N.D.	ug/kg	3.3	17
Aroclor 5432	06/10/13	N.D.	ug/kg	10	33
Aroclor 5442	06/10/13	N.D.	ug/kg	10	33
Aroclor 5460	06/10/13	N.D.	ug/kg	10	33

131620008A / PBLK08162 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
PCB-1016	06/12/13	N.D.	ug/kg	3.3	17
PCB-1221	06/12/13	N.D.	ug/kg	5.1	17
PCB-1232	06/12/13	N.D.	ug/kg	4.1	17
PCB-1242	06/12/13	N.D.	ug/kg	4.1	17
PCB-1248	06/12/13	N.D.	ug/kg	3.3	17
PCB-1254	06/12/13	N.D.	ug/kg	4.4	17
PCB-1260	06/12/13	N.D.	ug/kg	3.9	17
PCB-1262	06/12/13	N.D.	ug/kg	3.3	17
PCB-1268	06/12/13	N.D.	ug/kg	3.3	17
Aroclor 5432	06/12/13	N.D.	ug/kg	10	33
Aroclor 5442	06/12/13	N.D.	ug/kg	10	33
Aroclor 5460	06/12/13	N.D.	ug/kg	10	33

EMAX Herbicide Phase 1 Method Blank
Raw Data
SDG 12C182
(See Table 5)

NB2
Phase 1 +2

METHOD 8151A
HERBICIDES

Client : CDM	Date Collected: NA
Project : SSFL AREA IV COLLOCATED SAMPLING	Date Received: 03/24/12
Batch No. : 12C182	Date Extracted: 03/24/12 10:54
Sample ID: M8LK1S	Date Analyzed: 03/26/12 20:56
Lab Samp ID: HEC010SB	Dilution Factor: 1
Lab File ID: WC26017A	Matrix : SOIL
Ext Btch ID: HEC010S	% Moisture : NA
Calib. Ref.: WC26016A	Instrument ID : GCT016

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) | ND	3.6	1.8 | 1.8
2,4-DB	(ND) | ND	1.7	0.85 | 0.85
2,4,5-T	(ND) | ND	0.17	0.085 | 0.085
2,4,5-TP(SILVEX)	(ND) | ND	0.17	0.085 | 0.085
DALAPON	(ND) | ND	9.0	4.5 | 4.5
DICAMBA	(ND) | ND	1.2	0.60 | 0.60
DICHLOROPROP	(ND) | ND	2.4	1.2 | 1.2
DINOSEB	(ND) | ND	1.7	0.85 | 0.85
MCPA	(ND) | ND	250	120 | 120
MCPP	(ND) | ND	250	120 | 120

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	(94.05) | 83.92	150.0	(62.7) | 55.9	10-150

Left of | is related to first column; Right of | related to second column
Final result indicated by ( )

EMAX Herbicide Phase 3 Method Blank
Raw Data
SDG 12F037
(See Table 5)

5C
Phase 3

METHOD 8151A
HERBICIDES

Client : CDM	Date Collected: NA
Project : SSFL PHASE 3	Date Received: 06/08/12
Batch No. : 12F037	Date Extracted: 06/08/12 18:36
Sample ID: MBLK1S	Date Analyzed: 06/11/12 19:00
Lab Samp ID: HEF001SB	Dilution Factor: 1
Lab File ID: WF11016A	Matrix : SOIL
Ext Btch ID: HEF001S	% Moisture : NA
Calib. Ref.: WF11012A	Instrument ID : GCT016

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) | ND	10	5.0 | 5.0
2,4-DB	(ND) | ND	10	5.0 | 5.0
2,4,5-T	(ND) | ND	10	5.0 | 5.0
2,4,5-TP(SILVEX)	(ND) | ND	10	5.0 | 5.0
DALAPON	(ND) | ND	10	5.0 | 5.0
DICAMBA	(ND) | ND	10	5.0 | 5.0
DICHLOROPROP	(ND) | ND	10	5.0 | 5.0
DINOSEB	(ND) | ND	10	5.0 | 5.0
MCPA	(ND) | ND	2000	1000 | 1000
MCPP	(ND) | ND	2000	1000 | 1000

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	(615.7) | 603.3	500.0	(123) | 121	30-140

Left of | is related to first column; Right of | related to second column
Final result indicated by ( )

EMAX Pesticide Phase 1 Method Blank
Raw Data
SDG 12C305
(See Table 5)

Phase I
EMAX
NBZ

METHOD 3550B/8081A
PESTICIDES

Client : CDM	Date Collected: NA
Project : SSFL AREA IV COLLOCATED SAMPLING	Date Received: 04/10/12
Batch No. : 12C305	Date Extracted: 04/10/12 10:30
Sample ID: MBLK1S	Date Analyzed: 04/17/12 17:01
Lab Samp ID: CPD021SB	Dilution Factor: 1
Lab File ID: LD17013A	Matrix : SOIL
Ext Btch ID: CPD021S	% Moisture : NA
Calib. Ref.: LD17005A	Instrument ID : GCF9

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) | 0.16J	0.17	0.085 | 0.085
GAMMA-BHC (LINDANE)	(ND) | ND	0.17	0.085 | 0.085
BETA-BHC	(ND) | ND	0.17	0.085 | 0.085
HEPTACHLOR	(ND) | ND	0.17	0.085 | 0.085
DELTA-BHC	(ND) | ND	0.17	0.085 | 0.085
ALDRIN	(ND) | ND	0.17	0.085 | 0.085
HEPTACHLOR EPOXIDE	(ND) | ND	0.17	0.085 | 0.085
ENDOSULFAN I	(ND) | ND	0.17	0.085 | 0.085
4,4'-DDE	(ND) | ND	0.34	0.17 | 0.17
DIELDRIN	(ND) | ND	0.34	0.17 | 0.17
ENDRIN	(ND) | ND	0.34	0.17 | 0.17
4,4'-DDD	(ND) | ND	0.34	0.17 | 0.17
ENDOSULFAN II	(ND) | ND	0.34	0.17 | 0.17
4,4'-DDT	(ND) | ND	0.34	0.17 | 0.17
ENDRIN ALDEHYDE	(ND) | ND	0.34	0.17 | 0.17
ENDOSULFAN SULFATE	(ND) | ND	0.34	0.17 | 0.17
ENDRIN KETONE	(ND) | ND	0.34	0.17 | 0.17
METHOXYCHLOR	(ND) | ND	1.7	0.85 | 0.85
MIREX	(ND) | ND	0.34	0.17 | 0.17
TOXAPHENE	(ND) | ND	6.6	3.3 | 3.3
CHLORDANE (TECHNICAL)	(ND) | ND	3.4	1.7 | 1.7

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	5.024 | (5.288)	5.333	94.2 | (99.1)	50-130
DECACHLOROBIPHENYL	5.440 | (5.725)	5.333	102 | (107)	20-120

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

EMAX Pesticide Phase 3 Method Blank
Raw Data
SDG 12E187
(See Table 5)

Phase 3
EMAX
SC

METHOD 3550B/8081A
PESTICIDES

Client : CDM	Date Collected: NA
Project : SSFL PHASE 3	Date Received: 05/29/12
Batch No. : 12E187	Date Extracted: 05/29/12 15:12
Sample ID: MBLK1S	Date Analyzed: 06/05/12 22:41
Lab Samp ID: CPE037SB	Dilution Factor: 1
Lab File ID: MF05035B	Matrix : SOIL
Ext Btch ID: CPE037S	% Moisture : NA
Calib. Ref.: MF05026B	Instrument ID : GCE8

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	ND | (ND)	2.0	0.40 | 0.40
GAMMA-BHC (LINDANE)	ND | (ND)	2.0	0.40 | 0.40
BETA-BHC	ND | (ND)	2.0	0.40 | 0.40
HEPTACHLOR	0.43J | (ND)	2.0	0.40 | 0.40
DELTA-BHC	ND | (ND)	2.0	0.40 | 0.40
ALDRIN	ND | (ND)	2.0	0.40 | 0.40
HEPTACHLOR EPOXIDE	ND | (ND)	2.0	0.40 | 0.40
ENDOSULFAN I	ND | (ND)	2.0	0.40 | 0.40
4,4'-DDE	ND | (ND)	2.0	0.40 | 0.40
DIELDRIN	ND | (ND)	2.0	0.40 | 0.40
ENDRIN	ND | (ND)	2.0	0.40 | 0.40
4,4'-DDD	ND | (ND)	2.0	0.40 | 0.40
ENDOSULFAN II	ND | (ND)	2.0	0.40 | 0.40
4,4'-DDT	ND | (ND)	2.0	0.40 | 0.40
ENDRIN ALDEHYDE	ND | (ND)	2.0	0.40 | 0.40
ENDOSULFAN SULFATE	ND | (ND)	2.0	0.40 | 0.40
ENDRIN KETONE	ND | (ND)	2.0	0.40 | 0.40
METHOXYCHLOR	ND | (ND)	5.0	2.0 | 2.0
MIREX	ND | (ND)	2.0	0.40 | 0.40
TOXAPHENE	ND | (ND)	50	10 | 10
CHLORDANE (TECHNICAL)	ND | (ND)	10	5.0 | 5.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	11.57 | (10.07)	13.33	86.8 | (75.6)	50-130
DECACHLOROBIPHENYL	14.48 | (12.23)	13.33	109 | (91.8)	20-120

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

EMAX PCB Phase 1 Method Blank
Raw Data
SDG 12C305
(See Table 5)

Phase I
EMAX
NB2

METHOD 3550B/8082
PCBs

Client : CDM	Date Collected: NA
Project : SSFL AREA IV COLLOCATED SAMPLING	Date Received: 04/10/12
Batch No. : 12C305	Date Extracted: 04/10/12 13:15
Sample ID: MBLK1S	Date Analyzed: 04/14/12 23:29
Lab Samp ID: 60D022SB	Dilution Factor: 1
Lab File ID: KD12061A	Matrix : SOIL
Ext Btch ID: CPD022S	% Moisture : NA
Calib. Ref.: KD12057A	Instrument ID : GCT071

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
AROCLOR 1016	(ND) | ND	1.7	0.85 | 0.85
AROCLOR 1221	(ND) | ND	1.7	0.85 | 0.85
AROCLOR 1232	(ND) | ND	1.7	0.85 | 0.85
AROCLOR 1242	(ND) | ND	1.7	0.85 | 0.85
AROCLOR 1248	(ND) | ND	1.7	0.85 | 0.85
AROCLOR 1254	(ND) | ND	1.7	0.85 | 0.85
AROCLOR 1260	(ND) | ND	1.7	0.85 | 0.85
AROCLOR 1262	(ND) | ND	1.7	0.85 | 0.85
AROCLOR 1268	(ND) | ND	1.7	0.85 | 0.85
AROCLOR 5432	(ND) | ND	3.3	1.7 | 1.7
AROCLOR 5442	(ND) | ND	3.3	1.7 | 1.7
AROCLOR 5460	(ND) | ND	3.3	1.7 | 1.7

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
DECACHLOROBIPHENYL	(5.794) | 4.436	5.333	(109) | 83.2	45-120
TETRACHLORO-M-XYLENE	(5.713) | 4.855	5.333	(107) | 91.0	10-160

Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

EMAX PCB Phase 3 Method Blank
Raw Data
SDG 12F071
(See Table 5)

Phase 3
EMAX
SC

METHOD 3550B/8082
PCBs

Client : CDM	Date Collected: NA
Project : SSFL PHASE 3	Date Received: 06/20/12
Batch No. : 12F071	Date Extracted: 06/20/12 14:23
Sample ID: MBLK1S	Date Analyzed: 06/21/12 13:06
Lab Samp ID: 60F022SB	Dilution Factor: 1
Lab File ID: SF21007A	Matrix : SOIL
Ext Btch ID: CPF022S	% Moisture : NA
Calib. Ref.: SF21002A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
AROCLOR 1016	(ND) | ND	20	10 | 10
AROCLOR 1221	(ND) | ND	20	10 | 10
AROCLOR 1232	(ND) | ND	20	10 | 10
AROCLOR 1242	(ND) | ND	20	10 | 10
AROCLOR 1248	(ND) | ND	20	10 | 10
AROCLOR 1254	(ND) | ND	20	10 | 10
AROCLOR 1260	(ND) | ND	20	10 | 10
AROCLOR 1262	(ND) | ND	20	10 | 10
AROCLOR 1268	(ND) | ND	20	10 | 10
AROCLOR 5432	(ND) | ND	40	20 | 20
AROCLOR 5442	(ND) | ND	40	20 | 20
AROCLOR 5460	(ND) | ND	40	20 | 20

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
DECACHLOROBIPHENYL	(11.63) | 14.82	13.33	(87.3) | 111	45-120
TETRACHLORO-M-XYLENE	(12.28) | 14.09	13.33	(92.1) | 106	10-160

Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

Attachment D
Results of MRL LCS and MRL MS Study for Pesticides

SSFL

Table 1 - Summary of RL-LCS Results

Compound	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Lower Control Limit (%)	Upper Control Limit (%)	LCS 1 Recovery (%)	LCS 2 Recovery (%)	LCS 3 Recovery (%)	LCS 4 Recovery (%)	LCS 5 Recovery (%)	LCS 6 Recovery (%)	LCS 7 Recovery (%)	LCS 8 Recovery (%)	LCS 9 Recovery (%)
Aldrin	0.066	0.17	0.17	44	135	94.12	0.00 *	42.35 *	70.59	82.35	54.12	100.00	41.76 *	0.00 *
Alpha BHC	0.034	0.17	0.17	38	130	76.47	51.76	45.88	64.71	70.59	53.53	54.12	50.59	27.65 *
Beta BHC	0.06	0.17	0.16	56	134	112.50	75.00	93.75	106.25	118.75	93.75	93.75	68.75	0.00 *
Delta BHC	0.036	0.17	0.16	55	144	112.50	68.75	81.25	106.25	100.00	87.50	87.50	57.50	27.50 *
Dieldrin	0.066	0.34	0.34	65	129	52.94 *	35.29 *	52.94 *	100.00	44.12 *	70.59	50.00 *	55.88 *	26.47 *
Endosulfan Sulfate	0.066	0.34	0.33	45	123	54.55	36.36 *	69.70	121.21	51.52	75.76	93.94	63.64	36.36 *
Endrin	0.066	0.34	0.34	62	129	85.29	41.18 *	61.76 *	102.94	73.53	79.41	85.29	47.06 *	0.00 *
Endrin Aldehyde	0.066	0.34	0.33	55	132	81.82	36.36 *	54.55 *	90.91	87.88	57.58	66.67	54.55 *	66.67
Endrin Ketone	0.066	0.34	0.33	69	139	75.76	42.42 *	81.82	124.24	78.79	118.18	96.97	84.85	28.18 *
Gamma BHC - Lindane	0.034	0.17	0.17	46	127	88.24	54.71	53.53	76.47	82.35	58.82	64.71	55.88	24.71 *
Heptachlor	0.06	0.17	0.17	43	124	100.00	55.29	48.82	70.59	82.35	58.82	70.59	42.94 *	0.00 *
Heptachlor Epoxide	0.034	0.17	0.17	35	131	105.88	40.00	55.29	94.12	70.59	70.59	105.88	52.94	33.53 *
Methoxychlor	0.34	1.7	1.75	59	125	49.14 *	44.57 *	74.29	154.29 **	46.86 *	85.71	97.14	62.86	29.71 *
p,p-DDD	0.066	0.34	0.34	60	137	108.82	52.94 *	73.53	120.59	85.29	88.24	91.18	47.06 *	32.35 *
p,p-DDE	0.066	0.34	0.33	59	141	121.21	48.48 *	69.70	136.36	84.85	84.85	87.88	39.39 *	26.97 *
p,p-DDT	0.066	0.34	0.33	54	130	60.61	48.48 *	66.67	119.44	96.97	86.11	91.67	63.64	21.52 *

* - Result below lower control limit

** - Result above upper control limit

SSFL

Table 1 - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.16 J	0.066	0.17	0.17	94.12
Alpha BHC	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.13 J	0.034	0.17	0.17	76.47
Beta BHC	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18	0.06	0.17	0.16	112.50
Gamma BHC - Lindane	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.15 J	0.034	0.17	0.17	88.24
p,p-DDD	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.37	0.066	0.34	0.34	108.82
p,p-DDE	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.4	0.066	0.34	0.33	121.21
p,p-DDT	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.2 J	0.066	0.34	0.33	60.61
Delta BHC	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18	0.036	0.17	0.16	112.50
Dieldrin	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18 J	0.066	0.34	0.34	52.94 *
Endosulfan Sulfate	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18 J	0.066	0.34	0.33	54.55
Endrin	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.29 J	0.066	0.34	0.34	85.29
Endrin Aldehyde	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.27 J	0.066	0.34	0.33	81.82
Endrin Ketone	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.25 J	0.066	0.34	0.33	75.76
Heptachlor	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.17	0.06	0.17	0.17	100.00
Heptachlor Epoxide	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18	0.034	0.17	0.17	105.88
Methoxychlor	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.86 J	0.34	1.7	1.75	49.14 *
Aldrin	SL-008-SA7-SS-0.0-0.5RL LCS	0.072 J	0.066	0.17	0.17	42.35 *
Alpha BHC	SL-008-SA7-SS-0.0-0.5RL LCS	0.078 J	0.034	0.17	0.17	45.88
Beta BHC	SL-008-SA7-SS-0.0-0.5RL LCS	0.15 J	0.06	0.17	0.16	93.75
Gamma BHC - Lindane	SL-008-SA7-SS-0.0-0.5RL LCS	0.091 J	0.034	0.17	0.17	53.53
p,p-DDD	SL-008-SA7-SS-0.0-0.5RL LCS	0.25 J	0.066	0.34	0.34	73.53
p,p-DDE	SL-008-SA7-SS-0.0-0.5RL LCS	0.23 J	0.066	0.34	0.33	69.70
p,p-DDT	SL-008-SA7-SS-0.0-0.5RL LCS	0.24 J	0.066	0.34	0.36	66.67
Delta BHC	SL-008-SA7-SS-0.0-0.5RL LCS	0.13 J	0.036	0.17	0.16	81.25
Dieldrin	SL-008-SA7-SS-0.0-0.5RL LCS	0.18 J	0.066	0.34	0.34	52.94 *
Endosulfan Sulfate	SL-008-SA7-SS-0.0-0.5RL LCS	0.23 J	0.066	0.34	0.33	69.70
Endrin	SL-008-SA7-SS-0.0-0.5RL LCS	0.21 J	0.066	0.34	0.34	61.76 *
Endrin Aldehyde	SL-008-SA7-SS-0.0-0.5RL LCS	0.18 J	0.066	0.34	0.33	54.55 *
Endrin Ketone	SL-008-SA7-SS-0.0-0.5RL LCS	0.27 J	0.066	0.34	0.33	81.82
Heptachlor	SL-008-SA7-SS-0.0-0.5RL LCS	0.083 J	0.06	0.17	0.17	48.82
Heptachlor Epoxide	SL-008-SA7-SS-0.0-0.5RL LCS	0.094 J	0.034	0.17	0.17	55.29
Methoxychlor	SL-008-SA7-SS-0.0-0.5RL LCS	1.3 J	0.34	1.7	1.75	74.29

SSFL

Table 1 - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-015-SA7-SS-0.0-0.5RL LCS	0.12 J	0.066	0.17	0.17	70.59
Alpha BHC	SL-015-SA7-SS-0.0-0.5RL LCS	0.11 J	0.034	0.17	0.17	64.71
Beta BHC	SL-015-SA7-SS-0.0-0.5RL LCS	0.17	0.06	0.17	0.16	106.25
Gamma BHC - Lindane	SL-015-SA7-SS-0.0-0.5RL LCS	0.13 J	0.034	0.17	0.17	76.47
p,p-DDD	SL-015-SA7-SS-0.0-0.5RL LCS	0.41	0.066	0.34	0.34	120.59
p,p-DDE	SL-015-SA7-SS-0.0-0.5RL LCS	0.45	0.066	0.34	0.33	136.36
p,p-DDT	SL-015-SA7-SS-0.0-0.5RL LCS	0.43	0.066	0.34	0.36	119.44
Delta BHC	SL-015-SA7-SS-0.0-0.5RL LCS	0.17	0.036	0.17	0.16	106.25
Dieldrin	SL-015-SA7-SS-0.0-0.5RL LCS	0.34 J	0.066	0.34	0.34	100.00
Endosulfan Sulfate	SL-015-SA7-SS-0.0-0.5RL LCS	0.4	0.066	0.34	0.33	121.21
Endrin	SL-015-SA7-SS-0.0-0.5RL LCS	0.35	0.066	0.34	0.34	102.94
Endrin Aldehyde	SL-015-SA7-SS-0.0-0.5RL LCS	0.3 J	0.066	0.34	0.33	90.91
Endrin Ketone	SL-015-SA7-SS-0.0-0.5RL LCS	0.41	0.066	0.34	0.33	124.24
Heptachlor	SL-015-SA7-SS-0.0-0.5RL LCS	0.12 J	0.06	0.17	0.17	70.59
Heptachlor Epoxide	SL-015-SA7-SS-0.0-0.5RL LCS	0.16 J	0.034	0.17	0.17	94.12
Methoxychlor	SL-015-SA7-SS-0.0-0.5RL LCS	2.7	0.34	1.7	1.75	154.29 **
Aldrin	SL-042-SA7-SS-0.0-0.5RL LCS	0.092 J	0.066	0.17	0.17	54.12
Alpha BHC	SL-042-SA7-SS-0.0-0.5RL LCS	0.091 J	0.034	0.17	0.17	53.53
Beta BHC	SL-042-SA7-SS-0.0-0.5RL LCS	0.15 J	0.06	0.17	0.16	93.75
Gamma BHC - Lindane	SL-042-SA7-SS-0.0-0.5RL LCS	0.1 J	0.034	0.17	0.17	58.82
p,p-DDD	SL-042-SA7-SS-0.0-0.5RL LCS	0.3 J	0.066	0.34	0.34	88.24
p,p-DDE	SL-042-SA7-SS-0.0-0.5RL LCS	0.28 J	0.066	0.34	0.33	84.85
p,p-DDT	SL-042-SA7-SS-0.0-0.5RL LCS	0.31 J	0.066	0.34	0.36	86.11
Delta BHC	SL-042-SA7-SS-0.0-0.5RL LCS	0.14 J	0.036	0.17	0.16	87.50
Dieldrin	SL-042-SA7-SS-0.0-0.5RL LCS	0.24 J	0.066	0.34	0.34	70.59
Endosulfan Sulfate	SL-042-SA7-SS-0.0-0.5RL LCS	0.25 J	0.066	0.34	0.33	75.76
Endrin	SL-042-SA7-SS-0.0-0.5RL LCS	0.27 J	0.066	0.34	0.34	79.41
Endrin Aldehyde	SL-042-SA7-SS-0.0-0.5RL LCS	0.19 J	0.066	0.34	0.33	57.58
Endrin Ketone	SL-042-SA7-SS-0.0-0.5RL LCS	0.39	0.066	0.34	0.33	118.18
Heptachlor	SL-042-SA7-SS-0.0-0.5RL LCS	0.1 J	0.06	0.17	0.17	58.82
Heptachlor Epoxide	SL-042-SA7-SS-0.0-0.5RL LCS	0.12 J	0.034	0.17	0.17	70.59
Methoxychlor	SL-042-SA7-SS-0.0-0.5RL LCS	1.5 J	0.34	1.7	1.75	85.71

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Table 1 - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-050-SA7-SS-0.0-0.5RL LCS	0.17 J	0.066	0.17	0.17	100.00
Alpha BHC	SL-050-SA7-SS-0.0-0.5RL LCS	0.092 J	0.034	0.17	0.17	54.12
Beta BHC	SL-050-SA7-SS-0.0-0.5RL LCS	0.15 J	0.06	0.17	0.16	93.75
Gamma BHC - Lindane	SL-050-SA7-SS-0.0-0.5RL LCS	0.11 J	0.034	0.17	0.17	64.71
p,p-DDD	SL-050-SA7-SS-0.0-0.5RL LCS	0.31 J	0.066	0.34	0.34	91.18
p,p-DDE	SL-050-SA7-SS-0.0-0.5RL LCS	0.29 J	0.066	0.34	0.33	87.88
p,p-DDT	SL-050-SA7-SS-0.0-0.5RL LCS	0.33 J	0.066	0.34	0.36	91.67
Delta BHC	SL-050-SA7-SS-0.0-0.5RL LCS	0.14 J	0.036	0.17	0.16	87.50
Dieldrin	SL-050-SA7-SS-0.0-0.5RL LCS	0.17 J	0.066	0.34	0.34	50.00 *
Endosulfan Sulfate	SL-050-SA7-SS-0.0-0.5RL LCS	0.31 J	0.066	0.34	0.33	93.94
Endrin	SL-050-SA7-SS-0.0-0.5RL LCS	0.29 J	0.066	0.34	0.34	85.29
Endrin Aldehyde	SL-050-SA7-SS-0.0-0.5RL LCS	0.22 J	0.066	0.34	0.33	66.67
Endrin Ketone	SL-050-SA7-SS-0.0-0.5RL LCS	0.32 J	0.066	0.34	0.33	96.97
Heptachlor	SL-050-SA7-SS-0.0-0.5RL LCS	0.12 J	0.06	0.17	0.17	70.59
Heptachlor Epoxide	SL-050-SA7-SS-0.0-0.5RL LCS	0.18	0.034	0.17	0.17	105.88
Methoxychlor	SL-050-SA7-SS-0.0-0.5RL LCS	1.7	0.34	1.7	1.75	97.14
Endrin Aldehyde	SL-003-SA8S-SS-0.0-0.5RL LCS	0.12 J	0.066	0.34	0.33	36.36 *
Endrin Ketone	SL-003-SA8S-SS-0.0-0.5RL LCS	0.14 J	0.066	0.34	0.33	42.42 *
Alpha BHC	SL-003-SA8S-SS-0.0-0.5RL LCS	0.088 J	0.034	0.17	0.17	51.76
Beta BHC	SL-003-SA8S-SS-0.0-0.5RL LCS	0.12 J	0.06	0.17	0.16	75.00
Gamma BHC - Lindane	SL-003-SA8S-SS-0.0-0.5RL LCS	0.093 J	0.034	0.17	0.17	54.71
Delta BHC	SL-003-SA8S-SS-0.0-0.5RL LCS	0.11 J	0.036	0.17	0.16	68.75
Heptachlor	SL-003-SA8S-SS-0.0-0.5RL LCS	0.094 J	0.06	0.17	0.17	55.29
Aldrin	SL-003-SA8S-SS-0.0-0.5RL LCS	0.066 U	0.066	0.17	0.17	0.00 *
Heptachlor Epoxide	SL-003-SA8S-SS-0.0-0.5RL LCS	0.068 J	0.034	0.17	0.17	40.00
p,p-DDE	SL-003-SA8S-SS-0.0-0.5RL LCS	0.16 J	0.066	0.34	0.33	48.48 *
p,p-DDD	SL-003-SA8S-SS-0.0-0.5RL LCS	0.18 J	0.066	0.34	0.34	52.94 *
p,p-DDT	SL-003-SA8S-SS-0.0-0.5RL LCS	0.16 J	0.066	0.34	0.33	48.48 *
Methoxychlor	SL-003-SA8S-SS-0.0-0.5RL LCS	0.78 J	0.34	1.7	1.75	44.57 *
Dieldrin	SL-003-SA8S-SS-0.0-0.5RL LCS	0.12 J	0.066	0.34	0.34	35.29 *
Endrin	SL-003-SA8S-SS-0.0-0.5RL LCS	0.14 J	0.066	0.34	0.34	41.18 *
Endosulfan Sulfate	SL-003-SA8S-SS-0.0-0.5RL LCS	0.12 J	0.066	0.34	0.33	36.36 *

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Table 1 - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Endrin Aldehyde	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.29 J	0.066	0.34	0.33	87.88
Endrin Ketone	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.26 J	0.066	0.34	0.33	78.79
Alpha BHC	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.12 J	0.034	0.17	0.17	70.59
Beta BHC	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.19	0.06	0.17	0.16	118.75
Gamma BHC - Lindane	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.14 J	0.034	0.17	0.17	82.35
Delta BHC	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.16 J	0.036	0.17	0.16	100.00
Heptachlor	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.14 J	0.06	0.17	0.17	82.35
Aldrin	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.14 J	0.066	0.17	0.17	82.35
Heptachlor Epoxide	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.12 J	0.034	0.17	0.17	70.59
p,p-DDE	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.28 J	0.066	0.34	0.33	84.85
p,p-DDD	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.29 J	0.066	0.34	0.34	85.29
p,p-DDT	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.32 J	0.066	0.34	0.33	96.97
Methoxychlor	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.82 J	0.34	1.7	1.75	46.86 *
Dieldrin	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.15 J	0.066	0.34	0.34	44.12 *
Endrin	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.25 J	0.066	0.34	0.34	73.53
Endosulfan Sulfate	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.17 J	0.066	0.34	0.33	51.52
Endrin Aldehyde	SL-120-SA7-SS-0.0-0.5RL LCS	0.18 J	0.066	0.34	0.33	54.55 *
Endrin Ketone	SL-120-SA7-SS-0.0-0.5RL LCS	0.28 J	0.066	0.34	0.33	84.85
Alpha BHC	SL-120-SA7-SS-0.0-0.5RL LCS	0.086 J	0.034	0.17	0.17	50.59
Beta BHC	SL-120-SA7-SS-0.0-0.5RL LCS	0.11 J	0.06	0.17	0.16	68.75
Gamma BHC - Lindane	SL-120-SA7-SS-0.0-0.5RL LCS	0.095 J	0.034	0.17	0.17	55.88
Delta BHC	SL-120-SA7-SS-0.0-0.5RL LCS	0.092 J	0.036	0.17	0.16	57.50
Heptachlor	SL-120-SA7-SS-0.0-0.5RL LCS	0.073 J	0.06	0.17	0.17	42.94 *
Aldrin	SL-120-SA7-SS-0.0-0.5RL LCS	0.071 J	0.066	0.17	0.17	41.76 *
Heptachlor Epoxide	SL-120-SA7-SS-0.0-0.5RL LCS	0.09 J	0.034	0.17	0.17	52.94
p,p-DDE	SL-120-SA7-SS-0.0-0.5RL LCS	0.13 J	0.066	0.34	0.33	39.39 *
p,p-DDD	SL-120-SA7-SS-0.0-0.5RL LCS	0.16 J	0.066	0.34	0.34	47.06 *
p,p-DDT	SL-120-SA7-SS-0.0-0.5RL LCS	0.21 J	0.066	0.34	0.33	63.64
Methoxychlor	SL-120-SA7-SS-0.0-0.5RL LCS	1.1 J	0.34	1.7	1.75	62.86
Dieldrin	SL-120-SA7-SS-0.0-0.5RL LCS	0.19 J	0.066	0.34	0.34	55.88 *
Endrin	SL-120-SA7-SS-0.0-0.5RL LCS	0.16 J	0.066	0.34	0.34	47.06 *
Endosulfan Sulfate	SL-120-SA7-SS-0.0-0.5RL LCS	0.21 J	0.066	0.34	0.33	63.64

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Table 1 - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-283-SA6-SS-0.0-0.5RL LCS	0.066 U	0.066	0.17	0.17	0.00 *
Alpha BHC	SL-283-SA6-SS-0.0-0.5RL LCS	0.047 J	0.034	0.17	0.17	27.65 *
Beta BHC	SL-283-SA6-SS-0.0-0.5RL LCS	0.06 U	0.06	0.17	0.16	0.00 *
Delta BHC	SL-283-SA6-SS-0.0-0.5RL LCS	0.044 J	0.036	0.17	0.16	27.50 *
Dieldrin	SL-283-SA6-SS-0.0-0.5RL LCS	0.09 J	0.066	0.34	0.34	26.47 *
Endosulfan Sulfate	SL-283-SA6-SS-0.0-0.5RL LCS	0.12 J	0.066	0.34	0.33	36.36 *
Endrin	SL-283-SA6-SS-0.0-0.5RL LCS	0.066 U	0.066	0.34	0.34	0.00 *
Endrin Aldehyde	SL-283-SA6-SS-0.0-0.5RL LCS	0.22 J	0.066	0.34	0.33	66.67
Endrin Ketone	SL-283-SA6-SS-0.0-0.5RL LCS	0.093 J	0.066	0.34	0.33	28.18 *
Gamma BHC - Lindane	SL-283-SA6-SS-0.0-0.5RL LCS	0.042 J	0.034	0.17	0.17	24.71 *
Heptachlor	SL-283-SA6-SS-0.0-0.5RL LCS	0.06 U	0.06	0.17	0.17	0.00 *
Heptachlor Epoxide	SL-283-SA6-SS-0.0-0.5RL LCS	0.057 J	0.034	0.17	0.17	33.53 *
Methoxychlor	SL-283-SA6-SS-0.0-0.5RL LCS	0.52 J	0.34	1.7	1.75	29.71 *
p,p-DDD	SL-283-SA6-SS-0.0-0.5RL LCS	0.11 J	0.066	0.34	0.34	32.35 *
p,p-DDE	SL-283-SA6-SS-0.0-0.5RL LCS	0.089 J	0.066	0.34	0.33	26.97 *
p,p-DDT	SL-283-SA6-SS-0.0-0.5RL LCS	0.071 J	0.066	0.34	0.33	21.52 *

* - Result below lower control limit

** - Result above upper control limit

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Table 1a - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.16 J	0.066	0.17	0.17	94.12
Alpha BHC	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.13 J	0.034	0.17	0.17	76.47
Beta BHC	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18	0.06	0.17	0.16	112.50
Gamma BHC - Lindane	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.15 J	0.034	0.17	0.17	88.24
p,p-DDD	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.37	0.066	0.34	0.34	108.82
p,p-DDE	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.4	0.066	0.34	0.33	121.21
p,p-DDT	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.2 J	0.066	0.34	0.33	60.61
Delta BHC	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18	0.036	0.17	0.16	112.50
Dieldrin	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18 J	0.066	0.34	0.34	52.94 *
Endosulfan Sulfate	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18 J	0.066	0.34	0.33	54.55
Endrin	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.29 J	0.066	0.34	0.34	85.29
Endrin Aldehyde	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.27 J	0.066	0.34	0.33	81.82
Endrin Ketone	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.25 J	0.066	0.34	0.33	75.76
Heptachlor	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.17	0.06	0.17	0.17	100.00
Heptachlor Epoxide	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.18	0.034	0.17	0.17	105.88
Methoxychlor	SL-001-SA5DS-SS-0.0-0.5 RL LCS	0.86 J	0.34	1.7	1.75	49.14 *
Aldrin	SL-008-SA7-SS-0.0-0.5RL LCS	0.072 J	0.066	0.17	0.17	42.35 *
Alpha BHC	SL-008-SA7-SS-0.0-0.5RL LCS	0.078 J	0.034	0.17	0.17	45.88
Beta BHC	SL-008-SA7-SS-0.0-0.5RL LCS	0.15 J	0.06	0.17	0.16	93.75
Gamma BHC - Lindane	SL-008-SA7-SS-0.0-0.5RL LCS	0.091 J	0.034	0.17	0.17	53.53
p,p-DDD	SL-008-SA7-SS-0.0-0.5RL LCS	0.25 J	0.066	0.34	0.34	73.53
p,p-DDE	SL-008-SA7-SS-0.0-0.5RL LCS	0.23 J	0.066	0.34	0.33	69.70
p,p-DDT	SL-008-SA7-SS-0.0-0.5RL LCS	0.24 J	0.066	0.34	0.36	66.67
Delta BHC	SL-008-SA7-SS-0.0-0.5RL LCS	0.13 J	0.036	0.17	0.16	81.25
Dieldrin	SL-008-SA7-SS-0.0-0.5RL LCS	0.18 J	0.066	0.34	0.34	52.94 *
Endosulfan Sulfate	SL-008-SA7-SS-0.0-0.5RL LCS	0.23 J	0.066	0.34	0.33	69.70
Endrin	SL-008-SA7-SS-0.0-0.5RL LCS	0.21 J	0.066	0.34	0.34	61.76 *
Endrin Aldehyde	SL-008-SA7-SS-0.0-0.5RL LCS	0.18 J	0.066	0.34	0.33	54.55 *
Endrin Ketone	SL-008-SA7-SS-0.0-0.5RL LCS	0.27 J	0.066	0.34	0.33	81.82
Heptachlor	SL-008-SA7-SS-0.0-0.5RL LCS	0.083 J	0.06	0.17	0.17	48.82
Heptachlor Epoxide	SL-008-SA7-SS-0.0-0.5RL LCS	0.094 J	0.034	0.17	0.17	55.29
Methoxychlor	SL-008-SA7-SS-0.0-0.5RL LCS	1.3 J	0.34	1.7	1.75	74.29

SSFL

Table 1a - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-015-SA7-SS-0.0-0.5RL LCS	0.12 J	0.066	0.17	0.17	70.59
Alpha BHC	SL-015-SA7-SS-0.0-0.5RL LCS	0.11 J	0.034	0.17	0.17	64.71
Beta BHC	SL-015-SA7-SS-0.0-0.5RL LCS	0.17	0.06	0.17	0.16	106.25
Gamma BHC - Lindane	SL-015-SA7-SS-0.0-0.5RL LCS	0.13 J	0.034	0.17	0.17	76.47
p,p-DDD	SL-015-SA7-SS-0.0-0.5RL LCS	0.41	0.066	0.34	0.34	120.59
p,p-DDE	SL-015-SA7-SS-0.0-0.5RL LCS	0.45	0.066	0.34	0.33	136.36
p,p-DDT	SL-015-SA7-SS-0.0-0.5RL LCS	0.43	0.066	0.34	0.36	119.44
Delta BHC	SL-015-SA7-SS-0.0-0.5RL LCS	0.17	0.036	0.17	0.16	106.25
Dieldrin	SL-015-SA7-SS-0.0-0.5RL LCS	0.34 J	0.066	0.34	0.34	100.00
Endosulfan Sulfate	SL-015-SA7-SS-0.0-0.5RL LCS	0.4	0.066	0.34	0.33	121.21
Endrin	SL-015-SA7-SS-0.0-0.5RL LCS	0.35	0.066	0.34	0.34	102.94
Endrin Aldehyde	SL-015-SA7-SS-0.0-0.5RL LCS	0.3 J	0.066	0.34	0.33	90.91
Endrin Ketone	SL-015-SA7-SS-0.0-0.5RL LCS	0.41	0.066	0.34	0.33	124.24
Heptachlor	SL-015-SA7-SS-0.0-0.5RL LCS	0.12 J	0.06	0.17	0.17	70.59
Heptachlor Epoxide	SL-015-SA7-SS-0.0-0.5RL LCS	0.16 J	0.034	0.17	0.17	94.12
Methoxychlor	SL-015-SA7-SS-0.0-0.5RL LCS	2.7	0.34	1.7	1.75	154.29 **
Aldrin	SL-042-SA7-SS-0.0-0.5RL LCS	0.092 J	0.066	0.17	0.17	54.12
Alpha BHC	SL-042-SA7-SS-0.0-0.5RL LCS	0.091 J	0.034	0.17	0.17	53.53
Beta BHC	SL-042-SA7-SS-0.0-0.5RL LCS	0.15 J	0.06	0.17	0.16	93.75
Gamma BHC - Lindane	SL-042-SA7-SS-0.0-0.5RL LCS	0.1 J	0.034	0.17	0.17	58.82
p,p-DDD	SL-042-SA7-SS-0.0-0.5RL LCS	0.3 J	0.066	0.34	0.34	88.24
p,p-DDE	SL-042-SA7-SS-0.0-0.5RL LCS	0.28 J	0.066	0.34	0.33	84.85
p,p-DDT	SL-042-SA7-SS-0.0-0.5RL LCS	0.31 J	0.066	0.34	0.36	86.11
Delta BHC	SL-042-SA7-SS-0.0-0.5RL LCS	0.14 J	0.036	0.17	0.16	87.50
Dieldrin	SL-042-SA7-SS-0.0-0.5RL LCS	0.24 J	0.066	0.34	0.34	70.59
Endosulfan Sulfate	SL-042-SA7-SS-0.0-0.5RL LCS	0.25 J	0.066	0.34	0.33	75.76
Endrin	SL-042-SA7-SS-0.0-0.5RL LCS	0.27 J	0.066	0.34	0.34	79.41
Endrin Aldehyde	SL-042-SA7-SS-0.0-0.5RL LCS	0.19 J	0.066	0.34	0.33	57.58
Endrin Ketone	SL-042-SA7-SS-0.0-0.5RL LCS	0.39	0.066	0.34	0.33	118.18
Heptachlor	SL-042-SA7-SS-0.0-0.5RL LCS	0.1 J	0.06	0.17	0.17	58.82
Heptachlor Epoxide	SL-042-SA7-SS-0.0-0.5RL LCS	0.12 J	0.034	0.17	0.17	70.59
Methoxychlor	SL-042-SA7-SS-0.0-0.5RL LCS	1.5 J	0.34	1.7	1.75	85.71

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Table 1a - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-050-SA7-SS-0.0-0.5RL LCS	0.17 J	0.066	0.17	0.17	100.00
Alpha BHC	SL-050-SA7-SS-0.0-0.5RL LCS	0.092 J	0.034	0.17	0.17	54.12
Beta BHC	SL-050-SA7-SS-0.0-0.5RL LCS	0.15 J	0.06	0.17	0.16	93.75
Gamma BHC - Lindane	SL-050-SA7-SS-0.0-0.5RL LCS	0.11 J	0.034	0.17	0.17	64.71
p,p-DDD	SL-050-SA7-SS-0.0-0.5RL LCS	0.31 J	0.066	0.34	0.34	91.18
p,p-DDE	SL-050-SA7-SS-0.0-0.5RL LCS	0.29 J	0.066	0.34	0.33	87.88
p,p-DDT	SL-050-SA7-SS-0.0-0.5RL LCS	0.33 J	0.066	0.34	0.36	91.67
Delta BHC	SL-050-SA7-SS-0.0-0.5RL LCS	0.14 J	0.036	0.17	0.16	87.50
Dieldrin	SL-050-SA7-SS-0.0-0.5RL LCS	0.17 J	0.066	0.34	0.34	50.00 *
Endosulfan Sulfate	SL-050-SA7-SS-0.0-0.5RL LCS	0.31 J	0.066	0.34	0.33	93.94
Endrin	SL-050-SA7-SS-0.0-0.5RL LCS	0.29 J	0.066	0.34	0.34	85.29
Endrin Aldehyde	SL-050-SA7-SS-0.0-0.5RL LCS	0.22 J	0.066	0.34	0.33	66.67
Endrin Ketone	SL-050-SA7-SS-0.0-0.5RL LCS	0.32 J	0.066	0.34	0.33	96.97
Heptachlor	SL-050-SA7-SS-0.0-0.5RL LCS	0.12 J	0.06	0.17	0.17	70.59
Heptachlor Epoxide	SL-050-SA7-SS-0.0-0.5RL LCS	0.18	0.034	0.17	0.17	105.88
Methoxychlor	SL-050-SA7-SS-0.0-0.5RL LCS	1.7	0.34	1.7	1.75	97.14
Endrin Aldehyde	SL-003-SA8S-SS-0.0-0.5RL LCS	0.12 J	0.066	0.34	0.33	36.36 *
Endrin Ketone	SL-003-SA8S-SS-0.0-0.5RL LCS	0.14 J	0.066	0.34	0.33	42.42 *
Alpha BHC	SL-003-SA8S-SS-0.0-0.5RL LCS	0.088 J	0.034	0.17	0.17	51.76
Beta BHC	SL-003-SA8S-SS-0.0-0.5RL LCS	0.12 J	0.06	0.17	0.16	75.00
Gamma BHC - Lindane	SL-003-SA8S-SS-0.0-0.5RL LCS	0.093 J	0.034	0.17	0.17	54.71
Delta BHC	SL-003-SA8S-SS-0.0-0.5RL LCS	0.11 J	0.036	0.17	0.16	68.75
Heptachlor	SL-003-SA8S-SS-0.0-0.5RL LCS	0.094 J	0.06	0.17	0.17	55.29
Aldrin	SL-003-SA8S-SS-0.0-0.5RL LCS	0.066 U	0.066	0.17	0.17	0.00 *
Heptachlor Epoxide	SL-003-SA8S-SS-0.0-0.5RL LCS	0.068 J	0.034	0.17	0.17	40.00
p,p-DDE	SL-003-SA8S-SS-0.0-0.5RL LCS	0.16 J	0.066	0.34	0.33	48.48 *
p,p-DDD	SL-003-SA8S-SS-0.0-0.5RL LCS	0.18 J	0.066	0.34	0.34	52.94 *
p,p-DDT	SL-003-SA8S-SS-0.0-0.5RL LCS	0.16 J	0.066	0.34	0.33	48.48 *
Methoxychlor	SL-003-SA8S-SS-0.0-0.5RL LCS	0.78 J	0.34	1.7	1.75	44.57 *
Dieldrin	SL-003-SA8S-SS-0.0-0.5RL LCS	0.12 J	0.066	0.34	0.34	35.29 *
Endrin	SL-003-SA8S-SS-0.0-0.5RL LCS	0.14 J	0.066	0.34	0.34	41.18 *
Endosulfan Sulfate	SL-003-SA8S-SS-0.0-0.5RL LCS	0.12 J	0.066	0.34	0.33	36.36 *

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Table 1a - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Endrin Aldehyde	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.29 J	0.066	0.34	0.33	87.88
Endrin Ketone	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.26 J	0.066	0.34	0.33	78.79
Alpha BHC	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.12 J	0.034	0.17	0.17	70.59
Beta BHC	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.19	0.06	0.17	0.16	118.75
Gamma BHC - Lindane	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.14 J	0.034	0.17	0.17	82.35
Delta BHC	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.16 J	0.036	0.17	0.16	100.00
Heptachlor	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.14 J	0.06	0.17	0.17	82.35
Aldrin	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.14 J	0.066	0.17	0.17	82.35
Heptachlor Epoxide	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.12 J	0.034	0.17	0.17	70.59
p,p-DDE	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.28 J	0.066	0.34	0.33	84.85
p,p-DDD	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.29 J	0.066	0.34	0.34	85.29
p,p-DDT	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.32 J	0.066	0.34	0.33	96.97
Methoxychlor	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.82 J	0.34	1.7	1.75	46.86 *
Dieldrin	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.15 J	0.066	0.34	0.34	44.12 *
Endrin	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.25 J	0.066	0.34	0.34	73.53
Endosulfan Sulfate	SL-034-SA5DS-SS-0.0-0.5RL LCS	0.17 J	0.066	0.34	0.33	51.52
Endrin Aldehyde	SL-120-SA7-SS-0.0-0.5RL LCS	0.18 J	0.066	0.34	0.33	54.55 *
Endrin Ketone	SL-120-SA7-SS-0.0-0.5RL LCS	0.28 J	0.066	0.34	0.33	84.85
Alpha BHC	SL-120-SA7-SS-0.0-0.5RL LCS	0.086 J	0.034	0.17	0.17	50.59
Beta BHC	SL-120-SA7-SS-0.0-0.5RL LCS	0.11 J	0.06	0.17	0.16	68.75
Gamma BHC - Lindane	SL-120-SA7-SS-0.0-0.5RL LCS	0.095 J	0.034	0.17	0.17	55.88
Delta BHC	SL-120-SA7-SS-0.0-0.5RL LCS	0.092 J	0.036	0.17	0.16	57.50
Heptachlor	SL-120-SA7-SS-0.0-0.5RL LCS	0.073 J	0.06	0.17	0.17	42.94 *
Aldrin	SL-120-SA7-SS-0.0-0.5RL LCS	0.071 J	0.066	0.17	0.17	41.76 *
Heptachlor Epoxide	SL-120-SA7-SS-0.0-0.5RL LCS	0.09 J	0.034	0.17	0.17	52.94
p,p-DDE	SL-120-SA7-SS-0.0-0.5RL LCS	0.13 J	0.066	0.34	0.33	39.39 *
p,p-DDD	SL-120-SA7-SS-0.0-0.5RL LCS	0.16 J	0.066	0.34	0.34	47.06 *
p,p-DDT	SL-120-SA7-SS-0.0-0.5RL LCS	0.21 J	0.066	0.34	0.33	63.64
Methoxychlor	SL-120-SA7-SS-0.0-0.5RL LCS	1.1 J	0.34	1.7	1.75	62.86
Dieldrin	SL-120-SA7-SS-0.0-0.5RL LCS	0.19 J	0.066	0.34	0.34	55.88 *
Endrin	SL-120-SA7-SS-0.0-0.5RL LCS	0.16 J	0.066	0.34	0.34	47.06 *
Endosulfan Sulfate	SL-120-SA7-SS-0.0-0.5RL LCS	0.21 J	0.066	0.34	0.33	63.64

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Table 1a - Summary of Sample RL-LCS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-283-SA6-SS-0.0-0.5RL LCS	0.066 U	0.066	0.17	0.17	0.00 *
Alpha BHC	SL-283-SA6-SS-0.0-0.5RL LCS	0.047 J	0.034	0.17	0.17	27.65 *
Beta BHC	SL-283-SA6-SS-0.0-0.5RL LCS	0.06 U	0.06	0.17	0.16	0.00 *
Delta BHC	SL-283-SA6-SS-0.0-0.5RL LCS	0.044 J	0.036	0.17	0.16	27.50 *
Dieldrin	SL-283-SA6-SS-0.0-0.5RL LCS	0.09 J	0.066	0.34	0.34	26.47 *
Endosulfan Sulfate	SL-283-SA6-SS-0.0-0.5RL LCS	0.12 J	0.066	0.34	0.33	36.36 *
Endrin	SL-283-SA6-SS-0.0-0.5RL LCS	0.066 U	0.066	0.34	0.34	0.00 *
Endrin Aldehyde	SL-283-SA6-SS-0.0-0.5RL LCS	0.22 J	0.066	0.34	0.33	66.67
Endrin Ketone	SL-283-SA6-SS-0.0-0.5RL LCS	0.093 J	0.066	0.34	0.33	28.18 *
Gamma BHC - Lindane	SL-283-SA6-SS-0.0-0.5RL LCS	0.042 J	0.034	0.17	0.17	24.71 *
Heptachlor	SL-283-SA6-SS-0.0-0.5RL LCS	0.06 U	0.06	0.17	0.17	0.00 *
Heptachlor Epoxide	SL-283-SA6-SS-0.0-0.5RL LCS	0.057 J	0.034	0.17	0.17	33.53 *
Methoxychlor	SL-283-SA6-SS-0.0-0.5RL LCS	0.52 J	0.34	1.7	1.75	29.71 *
p,p-DDD	SL-283-SA6-SS-0.0-0.5RL LCS	0.11 J	0.066	0.34	0.34	32.35 *
p,p-DDE	SL-283-SA6-SS-0.0-0.5RL LCS	0.089 J	0.066	0.34	0.33	26.97 *
p,p-DDT	SL-283-SA6-SS-0.0-0.5RL LCS	0.071 J	0.066	0.34	0.33	21.52 *

* - Result below lower control limit

** - Result above upper control limit

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Table 2 - Summary of RL-MS Results

Compound	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Lower Control Limit (%)	Upper Control Limit (%)	MS 1 Recovery (%)	MS 2 Recovery (%)	MS 3 Recovery (%)	MS 4 Recovery (%)	MS 5 Recovery (%)	MS 6 Recovery (%)	MS 7 Recovery (%)	MS 8 Recovery (%)	MS 9 Recovery (%)
Aldrin	0.066	0.17	0.17	16	126	76.5	51.2	57.1	105.9	76.5	82.4	45.9	76.5	0.0 *
Alpha BHC	0.034	0.17	0.17	10	129	82.4	49.4	57.6	76.5	64.7	82.4	43.5	70.6	0.0 *
Beta BHC	0.06	0.17	0.16	14	147	45.0	62.5	56.9	112.5	59.4	118.8	51.9	48.8	0.0 *
Delta BHC	0.036	0.17	0.16	23	140	112.5	87.5	100.0	118.8	100.0	150.0 **	75.0	81.3	0.0 *
Dieldrin	0.066	0.34	0.34	19	154	117.6	47.1	88.2	111.8	91.2	88.2	0.0 *	0.0 *	0.0 *
Endosulfan Sulfate	0.066	0.34	0.33	16	137	130.3	0.0 *	333.3 **	133.3	109.1	103.0	57.6	0.0 *	0.0 *
Endrin	0.066	0.34	0.34	11	149	91.2	58.8	105.9	100.0	97.1	97.1	0.0 *	0.0 *	0.0 *
Endrin Aldehyde	0.066	0.34	0.33	10	148	157.6 **	87.9	278.8 **	109.1	87.9	75.8	0.0 *	757.6 **	0.0 *
Endrin Ketone	0.066	0.34	0.33	22	165	87.9	66.7	281.8 **	118.2	103.0	60.6	0.0 *	0.0 *	0.0 *
Gamma BHC - Lindane	0.034	0.17	0.17	10	140	123.5	55.3	64.7	88.2	88.2	94.1	49.4	52.9	32.4
Heptachlor	0.06	0.17	0.17	13	126	94.1	58.8	82.4	94.1	94.1	94.1	58.8	141.2 **	0.0 *
Heptachlor Epoxide	0.034	0.17	0.17	13	157	129.4	43.5	141.2	117.6	105.9	88.2	88.2	0.0 *	38.8
Methoxychlor	0.34	1.7	1.75	32	147	125.7	57.1	165.7 **	160.0 **	120.0	97.1	68.6	0.0 *	0.0 *
p,p-DDD	0.066	0.34	0.34	16	163	0.0 *	67.6	323.5 **	211.8 **	120.6	111.8	211.8 **	0.0 *	0.0 *
p,p-DDE	0.066	0.34	0.33	18	161	251.5 **	193.9 **	151.5	1787.9 **	130.3	97.0	97.0	515.2 **	48.5
p,p-DDT	0.066	0.34	0.36	10	176	472.2 **	138.9	333.3 **	305.6 **	166.7	222.2 **	388.9 **	6388.9 **	0.0 *

* - Result below lower control limit

** - Result above upper control limit

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Table 2a - Summary of Sample RL-MS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.13 J	0.066	0.17	0.17	76.5
Alpha BHC	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.14 J	0.034	0.17	0.17	82.4
Beta BHC	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.072 J	0.06	0.17	0.16	45.0
Gamma BHC - Lindane	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.21	0.034	0.17	0.17	123.5
p,p-DDD	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.066 U	0.066	0.34	0.34	0.0 *
p,p-DDE	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.83	0.066	0.34	0.33	251.5 **
p,p-DDT	SL-001-SA5DS-SS-0.0-0.5 RL MS	1.7	0.066	0.34	0.36	472.2 **
Delta BHC	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.18	0.036	0.17	0.16	112.5
Dieldrin	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.4	0.066	0.34	0.34	117.6
Endosulfan Sulfate	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.43	0.066	0.34	0.33	130.3
Endrin	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.31 J	0.066	0.34	0.34	91.2
Endrin Aldehyde	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.52	0.066	0.34	0.33	157.6 **
Endrin Ketone	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.29 J	0.066	0.34	0.33	87.9
Heptachlor	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.16 J	0.06	0.17	0.17	94.1
Heptachlor Epoxide	SL-001-SA5DS-SS-0.0-0.5 RL MS	0.22	0.034	0.17	0.17	129.4
Methoxychlor	SL-001-SA5DS-SS-0.0-0.5 RL MS	2.2	0.34	1.7	1.75	125.7
Aldrin	SL-008-SA7-SS-0.0-0.5RL MS	0.097 J	0.067	0.17	0.17	57.1
Alpha BHC	SL-008-SA7-SS-0.0-0.5RL MS	0.098 J	0.034	0.17	0.17	57.6
Beta BHC	SL-008-SA7-SS-0.0-0.5RL MS	0.091 J	0.061	0.17	0.16	56.9
Gamma BHC - Lindane	SL-008-SA7-SS-0.0-0.5RL MS	0.11 J	0.034	0.17	0.17	64.7
p,p-DDD	SL-008-SA7-SS-0.0-0.5RL MS	1.1	0.067	0.34	0.34	323.5 **
p,p-DDE	SL-008-SA7-SS-0.0-0.5RL MS	0.5	0.067	0.34	0.33	151.5
p,p-DDT	SL-008-SA7-SS-0.0-0.5RL MS	1.2	0.067	0.34	0.36	333.3 **
Delta BHC	SL-008-SA7-SS-0.0-0.5RL MS	0.16 J	0.036	0.17	0.16	100.0
Dieldrin	SL-008-SA7-SS-0.0-0.5RL MS	0.3 J	0.067	0.34	0.34	88.2
Endosulfan Sulfate	SL-008-SA7-SS-0.0-0.5RL MS	1.1	0.067	0.34	0.33	333.3 **
Endrin	SL-008-SA7-SS-0.0-0.5RL MS	0.36	0.067	0.34	0.34	105.9
Endrin Aldehyde	SL-008-SA7-SS-0.0-0.5RL MS	0.92	0.067	0.34	0.33	278.8 **
Endrin Ketone	SL-008-SA7-SS-0.0-0.5RL MS	0.93	0.067	0.34	0.33	281.8 **
Heptachlor	SL-008-SA7-SS-0.0-0.5RL MS	0.14 J	0.061	0.17	0.17	82.4
Heptachlor Epoxide	SL-008-SA7-SS-0.0-0.5RL MS	0.24	0.034	0.17	0.17	141.2
Methoxychlor	SL-008-SA7-SS-0.0-0.5RL MS	2.9	0.34	1.7	1.75	165.7 **

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Table 2a - Summary of Sample RL-MS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-015-SA7-SS-0.0-0.5RL MS	0.18	0.067	0.17	0.17	105.9
Alpha BHC	SL-015-SA7-SS-0.0-0.5RL MS	0.13 J	0.034	0.17	0.17	76.5
Beta BHC	SL-015-SA7-SS-0.0-0.5RL MS	0.18	0.061	0.17	0.16	112.5
Gamma BHC - Lindane	SL-015-SA7-SS-0.0-0.5RL MS	0.15 J	0.034	0.17	0.17	88.2
p,p-DDD	SL-015-SA7-SS-0.0-0.5RL MS	0.72	0.067	0.34	0.34	211.8 **
p,p-DDE	SL-015-SA7-SS-0.0-0.5RL MS	5.9	0.067	0.34	0.33	1787.9 **
p,p-DDT	SL-015-SA7-SS-0.0-0.5RL MS	1.1	0.067	0.34	0.36	305.6 **
Delta BHC	SL-015-SA7-SS-0.0-0.5RL MS	0.19	0.036	0.17	0.16	118.8
Dieldrin	SL-015-SA7-SS-0.0-0.5RL MS	0.38	0.067	0.34	0.34	111.8
Endosulfan Sulfate	SL-015-SA7-SS-0.0-0.5RL MS	0.44	0.067	0.34	0.33	133.3
Endrin	SL-015-SA7-SS-0.0-0.5RL MS	0.34 J	0.067	0.34	0.34	100.0
Endrin Aldehyde	SL-015-SA7-SS-0.0-0.5RL MS	0.36	0.067	0.34	0.33	109.1
Endrin Ketone	SL-015-SA7-SS-0.0-0.5RL MS	0.39	0.067	0.34	0.33	118.2
Heptachlor	SL-015-SA7-SS-0.0-0.5RL MS	0.16 J	0.061	0.17	0.17	94.1
Heptachlor Epoxide	SL-015-SA7-SS-0.0-0.5RL MS	0.2	0.034	0.17	0.17	117.6
Methoxychlor	SL-015-SA7-SS-0.0-0.5RL MS	2.8	0.34	1.7	1.75	160.0 **
Aldrin	SL-042-SA7-SS-0.0-0.5RL MS	0.14 J	0.066	0.17	0.17	82.4
Alpha BHC	SL-042-SA7-SS-0.0-0.5RL MS	0.14 J	0.034	0.17	0.17	82.4
Beta BHC	SL-042-SA7-SS-0.0-0.5RL MS	0.19	0.06	0.17	0.16	118.8
Gamma BHC - Lindane	SL-042-SA7-SS-0.0-0.5RL MS	0.16 J	0.034	0.17	0.17	94.1
p,p-DDD	SL-042-SA7-SS-0.0-0.5RL MS	0.38	0.066	0.34	0.34	111.8
p,p-DDE	SL-042-SA7-SS-0.0-0.5RL MS	0.32 J	0.066	0.34	0.33	97.0
p,p-DDT	SL-042-SA7-SS-0.0-0.5RL MS	0.8	0.066	0.34	0.36	222.2 **
Delta BHC	SL-042-SA7-SS-0.0-0.5RL MS	0.24	0.036	0.17	0.16	150.0 **
Dieldrin	SL-042-SA7-SS-0.0-0.5RL MS	0.3 J	0.066	0.34	0.34	88.2
Endosulfan Sulfate	SL-042-SA7-SS-0.0-0.5RL MS	0.34	0.066	0.34	0.33	103.0
Endrin	SL-042-SA7-SS-0.0-0.5RL MS	0.33 J	0.066	0.34	0.34	97.1
Endrin Aldehyde	SL-042-SA7-SS-0.0-0.5RL MS	0.25 J	0.066	0.34	0.33	75.8
Endrin Ketone	SL-042-SA7-SS-0.0-0.5RL MS	0.2 J	0.066	0.34	0.33	60.6
Heptachlor	SL-042-SA7-SS-0.0-0.5RL MS	0.16 J	0.06	0.17	0.17	94.1
Heptachlor Epoxide	SL-042-SA7-SS-0.0-0.5RL MS	0.15 J	0.034	0.17	0.17	88.2
Methoxychlor	SL-042-SA7-SS-0.0-0.5RL MS	1.7	0.34	1.7	1.75	97.1

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Table 2a - Summary of Sample RL-MS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-050-SA7-SS-0.0-0.5RL MS	0.078 J	0.067	0.17	0.17	45.9
Alpha BHC	SL-050-SA7-SS-0.0-0.5RL MS	0.074 J	0.035	0.17	0.17	43.5
Beta BHC	SL-050-SA7-SS-0.0-0.5RL MS	0.083 J	0.061	0.17	0.16	51.9
Gamma BHC - Lindane	SL-050-SA7-SS-0.0-0.5RL MS	0.084 J	0.035	0.17	0.17	49.4
p,p-DDD	SL-050-SA7-SS-0.0-0.5RL MS	0.72	0.067	0.35	0.34	211.8 **
p,p-DDE	SL-050-SA7-SS-0.0-0.5RL MS	0.32 J	0.067	0.35	0.33	97.0
p,p-DDT	SL-050-SA7-SS-0.0-0.5RL MS	1.4	0.067	0.35	0.36	388.9 **
Delta BHC	SL-050-SA7-SS-0.0-0.5RL MS	0.12 J	0.037	0.17	0.16	75.0
Dieldrin	SL-050-SA7-SS-0.0-0.5RL MS	0.067 U	0.067	0.35	0.34	0.0 *
Endosulfan Sulfate	SL-050-SA7-SS-0.0-0.5RL MS	0.19 J	0.067	0.35	0.33	57.6
Endrin	SL-050-SA7-SS-0.0-0.5RL MS	0.16 U	0.16	0.35	0.34	0.0 *
Endrin Aldehyde	SL-050-SA7-SS-0.0-0.5RL MS	0.44 U	0.44	0.44	0.33	0.0 *
Endrin Ketone	SL-050-SA7-SS-0.0-0.5RL MS	0.57 U	0.57	0.57	0.33	0.0 *
Heptachlor	SL-050-SA7-SS-0.0-0.5RL MS	0.1 J	0.061	0.17	0.17	58.8
Heptachlor Epoxide	SL-050-SA7-SS-0.0-0.5RL MS	0.15 J	0.035	0.17	0.17	88.2
Methoxychlor	SL-050-SA7-SS-0.0-0.5RL MS	1.2 J	0.35	1.7	1.75	68.6
Endrin Aldehyde	SL-003-SA8S-SS-0.0-0.5RL MS	0.29 J	0.068	0.35	0.33	87.9
Endrin Ketone	SL-003-SA8S-SS-0.0-0.5RL MS	0.22 J	0.068	0.35	0.33	66.7
Alpha BHC	SL-003-SA8S-SS-0.0-0.5RL MS	0.084 J	0.035	0.17	0.17	49.4
Beta BHC	SL-003-SA8S-SS-0.0-0.5RL MS	0.1 J	0.062	0.17	0.16	62.5
Gamma BHC - Lindane	SL-003-SA8S-SS-0.0-0.5RL MS	0.094 J	0.035	0.17	0.17	55.3
Delta BHC	SL-003-SA8S-SS-0.0-0.5RL MS	0.14 J	0.037	0.17	0.16	87.5
Heptachlor	SL-003-SA8S-SS-0.0-0.5RL MS	0.1 J	0.062	0.17	0.17	58.8
Aldrin	SL-003-SA8S-SS-0.0-0.5RL MS	0.087 J	0.068	0.17	0.17	51.2
Heptachlor Epoxide	SL-003-SA8S-SS-0.0-0.5RL MS	0.074 J	0.035	0.17	0.17	43.5
p,p-DDE	SL-003-SA8S-SS-0.0-0.5RL MS	0.64	0.068	0.35	0.33	193.9 **
p,p-DDD	SL-003-SA8S-SS-0.0-0.5RL MS	0.23 J	0.068	0.35	0.34	67.6
p,p-DDT	SL-003-SA8S-SS-0.0-0.5RL MS	0.5	0.068	0.35	0.36	138.9
Methoxychlor	SL-003-SA8S-SS-0.0-0.5RL MS	1 J	0.35	1.7	1.75	57.1
Dieldrin	SL-003-SA8S-SS-0.0-0.5RL MS	0.16 J	0.068	0.35	0.34	47.1
Endrin	SL-003-SA8S-SS-0.0-0.5RL MS	0.2 J	0.068	0.35	0.34	58.8
Endosulfan Sulfate	SL-003-SA8S-SS-0.0-0.5RL MS	0.068 U	0.068	0.35	0.33	0.0 *

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Table 2a - Summary of Sample RL-MS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Endrin Aldehyde	SL-034-SA5DS-SS-0.0-0.5RL MS	0.29 J	0.068	0.35	0.33	87.9
Endrin Ketone	SL-034-SA5DS-SS-0.0-0.5RL MS	0.34 J	0.068	0.35	0.33	103.0
Alpha BHC	SL-034-SA5DS-SS-0.0-0.5RL MS	0.11 J	0.035	0.17	0.17	64.7
Beta BHC	SL-034-SA5DS-SS-0.0-0.5RL MS	0.095 J	0.062	0.17	0.16	59.4
Gamma BHC - Lindane	SL-034-SA5DS-SS-0.0-0.5RL MS	0.15 J	0.035	0.17	0.17	88.2
Delta BHC	SL-034-SA5DS-SS-0.0-0.5RL MS	0.16 J	0.037	0.17	0.16	100.0
Heptachlor	SL-034-SA5DS-SS-0.0-0.5RL MS	0.16 J	0.062	0.17	0.17	94.1
Aldrin	SL-034-SA5DS-SS-0.0-0.5RL MS	0.13 J	0.068	0.17	0.17	76.5
Heptachlor Epoxide	SL-034-SA5DS-SS-0.0-0.5RL MS	0.18	0.035	0.17	0.17	105.9
p,p-DDE	SL-034-SA5DS-SS-0.0-0.5RL MS	0.43	0.068	0.35	0.33	130.3
p,p-DDD	SL-034-SA5DS-SS-0.0-0.5RL MS	0.41	0.068	0.35	0.34	120.6
p,p-DDT	SL-034-SA5DS-SS-0.0-0.5RL MS	0.6	0.068	0.35	0.36	166.7
Methoxychlor	SL-034-SA5DS-SS-0.0-0.5RL MS	2.1	0.35	1.7	1.75	120.0
Dieldrin	SL-034-SA5DS-SS-0.0-0.5RL MS	0.31 J	0.068	0.35	0.34	91.2
Endrin	SL-034-SA5DS-SS-0.0-0.5RL MS	0.33 J	0.068	0.35	0.34	97.1
Endosulfan Sulfate	SL-034-SA5DS-SS-0.0-0.5RL MS	0.36	0.068	0.35	0.33	109.1
Endrin Aldehyde	SL-120-SA7-SS-0.0-0.5RL MS	2.5	0.068	0.35	0.33	757.6 **
Endrin Ketone	SL-120-SA7-SS-0.0-0.5RL MS	0.068 U	0.068	0.35	0.33	0.0 *
Alpha BHC	SL-120-SA7-SS-0.0-0.5RL MS	0.12 J	0.035	0.17	0.17	70.6
Beta BHC	SL-120-SA7-SS-0.0-0.5RL MS	0.078 J	0.062	0.17	0.16	48.8
Gamma BHC - Lindane	SL-120-SA7-SS-0.0-0.5RL MS	0.09 J	0.035	0.17	0.17	52.9
Delta BHC	SL-120-SA7-SS-0.0-0.5RL MS	0.13 J	0.037	0.17	0.16	81.3
Heptachlor	SL-120-SA7-SS-0.0-0.5RL MS	0.24	0.062	0.17	0.17	141.2 **
Aldrin	SL-120-SA7-SS-0.0-0.5RL MS	0.13 J	0.068	0.17	0.17	76.5
Heptachlor Epoxide	SL-120-SA7-SS-0.0-0.5RL MS	0.87 U	0.87	0.87	0.17	0.0 *
p,p-DDE	SL-120-SA7-SS-0.0-0.5RL MS	1.7	0.068	0.35	0.33	515.2 **
p,p-DDD	SL-120-SA7-SS-0.0-0.5RL MS	0.068 U	0.068	0.35	0.34	0.0 *
p,p-DDT	SL-120-SA7-SS-0.0-0.5RL MS	23	0.68	3.5	0.36	6388.9 **
Methoxychlor	SL-120-SA7-SS-0.0-0.5RL MS	0.35 U	0.35	1.7	1.75	0.0 *
Dieldrin	SL-120-SA7-SS-0.0-0.5RL MS	1.6 U	1.6	1.6	0.34	0.0 *
Endrin	SL-120-SA7-SS-0.0-0.5RL MS	1.6 U	1.6	1.6	0.34	0.0 *
Endosulfan Sulfate	SL-120-SA7-SS-0.0-0.5RL MS	0.068 U	0.068	0.35	0.33	0.0 *

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Table 2a - Summary of Sample RL-MS Results

Compound	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
Aldrin	SL-283-SA6-SS-0.0-0.5RL MS	0.07 U	0.07	0.18	0.17	0.0 *
Alpha BHC	SL-283-SA6-SS-0.0-0.5RL MS	0.036 U	0.036	0.18	0.17	0.0 *
Beta BHC	SL-283-SA6-SS-0.0-0.5RL MS	0.064 U	0.064	0.18	0.16	0.0 *
Delta BHC	SL-283-SA6-SS-0.0-0.5RL MS	0.038 U	0.038	0.18	0.16	0.0 *
Dieldrin	SL-283-SA6-SS-0.0-0.5RL MS	0.07 U	0.07	0.36	0.34	0.0 *
Endosulfan Sulfate	SL-283-SA6-SS-0.0-0.5RL MS	0.07 U	0.07	0.36	0.33	0.0 *
Endrin	SL-283-SA6-SS-0.0-0.5RL MS	0.19 U	0.19	0.36	0.34	0.0 *
Endrin Aldehyde	SL-283-SA6-SS-0.0-0.5RL MS	0.32 U	0.32	0.36	0.33	0.0 *
Endrin Ketone	SL-283-SA6-SS-0.0-0.5RL MS	0.07 U	0.07	0.36	0.33	0.0 *
Gamma BHC - Lindane	SL-283-SA6-SS-0.0-0.5RL MS	0.055 J	0.036	0.18	0.17	32.4
Heptachlor	SL-283-SA6-SS-0.0-0.5RL MS	0.064 U	0.064	0.18	0.17	0.0 *
Heptachlor Epoxide	SL-283-SA6-SS-0.0-0.5RL MS	0.066 J	0.036	0.18	0.17	38.8
Methoxychlor	SL-283-SA6-SS-0.0-0.5RL MS	0.36 U	0.36	1.8	1.75	0.0 *
p,p-DDD	SL-283-SA6-SS-0.0-0.5RL MS	0.07 U	0.07	0.36	0.34	0.0 *
p,p-DDE	SL-283-SA6-SS-0.0-0.5RL MS	0.16 J	0.07	0.36	0.33	48.5
p,p-DDT	SL-283-SA6-SS-0.0-0.5RL MS	0.97 U	0.97	0.97	0.36	0.0 *

* - Result below lower control limit

** - Result above upper control limit

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Table 3 - Summary of Control Limit Exceedences

Compound	Number of Samples	Number Below the Control Limit	Number Above the Control Limit	% Outside of Control Limits	Lower Control Limit (%)	Upper Control Limit (%)
RL-LCS						
Aldrin	9	4	0	44.4	44	135
Alpha BHC	9	1	0	11.1	38	130
Beta BHC	9	1	0	11.1	56	134
Gamma BHC - Lindane	9	1	0	11.1	46	127
p,p-DDD	9	3	0	33.3	60	137
p,p-DDE	9	3	0	33.3	59	141
p,p-DDT	9	2	0	22.2	54	130
Delta BHC	9	1	0	11.1	55	144
Dieldrin	9	7	0	77.8	65	129
Endosulfan Sulfate	9	2	0	22.2	45	123
Endrin	9	4	0	44.4	62	129
Endrin Aldehyde	9	3	0	33.3	55	132
Endrin Ketone	9	2	0	22.2	69	139
Heptachlor	9	2	0	22.2	43	124
Heptachlor Epoxide	9	1	0	11.1	35	131
Methoxychlor	9	4	1	55.6	59	125
RL-MS						
Aldrin	9	1	0	11.1	16	126
Alpha BHC	9	1	0	11.1	10	129
Beta BHC	9	1	0	11.1	14	147
Gamma BHC - Lindane	9	0	0	0.0	10	140
p,p-DDD	9	3	3	66.7	16	163
p,p-DDE	9	0	4	44.4	18	161
p,p-DDT	9	1	6	77.8	10	176
Delta BHC	9	1	1	22.2	23	140
Dieldrin	9	3	0	33.3	19	154
Endosulfan Sulfate	9	3	1	44.4	16	137
Endrin	9	3	0	33.3	11	149
Endrin Aldehyde	9	2	3	55.6	10	148
Endrin Ketone	9	3	1	44.4	22	165
Heptachlor	9	1	1	22.2	13	126
Heptachlor Epoxide	9	1	0	11.1	13	157
Methoxychlor	9	2	2	44.4	32	147

Attachment E
Results of MRL LCS and MRL MS Study for PCBs

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Table 1 - Summary of RL-LCS Results

Compound	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Lower Control Limit (%)	Upper Control Limit (%)	LCS 1 Recovery (%)	LCS 2 Recovery (%)	LCS 3 Recovery (%)	LCS 4 Recovery (%)	LCS 5 Recovery (%)	LCS 6 Recovery (%)
PCB-1016	0.33	1.7	1.67	65	137	137.72	107.78	107.78	101.80	101.80	101.80
PCB-1260	0.39	1.7	1.67	65	137	137.72	113.77	107.78	113.77	125.75	58.08

Compound	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Lower Control Limit (%)	Upper Control Limit (%)	LCS 7 Recovery (%)	LCS 8 Recovery (%)	LCS 9 Recovery (%)	LCS 10 Recovery (%)	LCS 11 Recovery (%)	LCS 12 Recovery (%)
	(blank)	(blank)	(blank)								
PCB-1016	0.33	1.7	1.67	65	137	95.81	119.76	113.77	119.76	89.82	101.80
PCB-1260	0.39	1.7	1.67	65	137	107.78	131.74	131.74	125.75	107.78	95.81

Compound	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Lower Control Limit (%)	Upper Control Limit (%)	LCS 13 Recovery (%)	LCS 14 Recovery (%)	LCS 15 Recovery (%)	LCS 16 Recovery (%)	LCS 17 Recovery (%)	LCS 18 Recovery (%)
	(blank)	(blank)	(blank)								
PCB-1016	0.33	1.7	1.67	65	137	137.72	101.80	89.82	83.83	101.80	83.83
PCB-1260	0.39	1.7	1.67	65	137	155.69	107.78	107.78	95.81	119.76	101.80

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Table 2 - RL-LCS Results

Compound	Sample Type	Sample ID	Result ug/kg	Qualifier	MDL (ug/kg)	Reporting Limit (ug/kg)	Spiking Value (ug/kg)	Recovery (%)
PCB-1016	LCS	SL-001-SA6-SB-0.0-1.0RL LCS	2.3		0.33	1.7	1.67	137.72
PCB-1016	LCS	SL-008-SA7-SS-0.0-0.5RL LCS	1.8		0.33	1.7	1.67	107.78
PCB-1016	LCS	SL-042-SA7-SS-0.0-0.5RL LCS	1.8		0.33	1.7	1.67	107.78
PCB-1016	LCS	SL-001-SA5DS-SS-0.0-0.5 RL LCS	1.7	J	0.33	1.7	1.67	101.80
PCB-1016	LCS	SL-102-SA7-SB-4.0-5.0 RL LCS	1.7		0.33	1.7	1.67	101.80
PCB-1016	LCS	SL-125-SA7-SB-4.0-5.0 RL LCS	1.7		0.33	1.7	1.67	101.80
PCB-1016	LCS	SL-050-SA7-SS-0.0-0.5RL LCS	1.6	J	0.33	1.7	1.67	95.81
PCB-1016	LCS	SL-015-SA7-SS-0.0-0.5RL LCS	2		0.33	1.7	1.67	119.76
PCB-1016	LCS	SL-103-SA7-SB-4.0-5.0RL LCS	1.9		0.33	1.7	1.67	113.77
PCB-1016	LCS	SL-319-SA6-SB-4.0-5.0RL LCS	2		0.33	1.7	1.67	119.76
PCB-1016	LCS	SL-034-SA5DS-SB-4.0-5.0RL LCS	1.5	J	0.33	1.7	1.67	89.82
PCB-1016	LCS	SL-120-SA7-SS-0.0-0.5RL LCS	1.7		0.33	1.7	1.67	101.80
PCB-1016	LCS	SL-034-SA5DS-SS-0.0-0.5RL LCS	2.3		0.33	1.7	1.67	137.72
PCB-1016	LCS	SL-011-SA3-SB-4.0-5.0RL LCS	1.7	J	0.33	1.7	1.67	101.80
PCB-1016	LCS	SL-034-SA5DS-SB-4.0-5.0RL LCS	1.5	J	0.33	1.7	1.67	89.82
PCB-1016	LCS	SL-003-SA8S-SS-0.0-0.5RL LCS	1.4	J	0.39	1.7	1.67	83.83
PCB-1016	LCS	SL-089-SA7-SB-3.5-4.5RL LCS	1.7	J	0.33	1.7	1.67	101.80
PCB-1016	LCS	SL-018-SA8S-SB-4.0-5.0RL LCS	1.4	J	0.33	1.7	1.67	83.83
PCB-1260	LCS	SL-001-SA6-SB-0.0-1.0RL LCS	2.3		0.39	1.7	1.67	137.72
PCB-1260	LCS	SL-008-SA7-SS-0.0-0.5RL LCS	1.9		0.39	1.7	1.67	113.77
PCB-1260	LCS	SL-042-SA7-SS-0.0-0.5RL LCS	1.8		0.39	1.7	1.67	107.78
PCB-1260	LCS	SL-001-SA5DS-SS-0.0-0.5 RL LCS	1.9		0.39	1.7	1.67	113.77
PCB-1260	LCS	SL-102-SA7-SB-4.0-5.0 RL LCS	2.1		0.39	1.7	1.67	125.75
PCB-1260	LCS	SL-125-SA7-SB-4.0-5.0 RL LCS	0.97	J	0.39	1.7	1.67	58.08
PCB-1260	LCS	SL-050-SA7-SS-0.0-0.5RL LCS	1.8		0.39	1.7	1.67	107.78
PCB-1260	LCS	SL-015-SA7-SS-0.0-0.5RL LCS	2.2		0.39	1.7	1.67	131.74
PCB-1260	LCS	SL-103-SA7-SB-4.0-5.0RL LCS	2.2		0.39	1.7	1.67	131.74
PCB-1260	LCS	SL-319-SA6-SB-4.0-5.0RL LCS	2.1		0.39	1.7	1.67	125.75
PCB-1260	LCS	SL-034-SA5DS-SB-4.0-5.0RL LCS	1.8		0.39	1.7	1.67	107.78
PCB-1260	LCS	SL-120-SA7-SS-0.0-0.5RL LCS	1.6	J	0.39	1.7	1.67	95.81
PCB-1260	LCS	SL-034-SA5DS-SS-0.0-0.5RL LCS	2.6		0.39	1.7	1.67	155.69 *
PCB-1260	LCS	SL-011-SA3-SB-4.0-5.0RL LCS	1.8		0.39	1.7	1.67	107.78
PCB-1260	LCS	SL-034-SA5DS-SB-4.0-5.0RL LCS	1.8		0.39	1.7	1.67	107.78
PCB-1260	LCS	SL-003-SA8S-SS-0.0-0.5RL LCS	1.6	J	0.39	1.7	1.67	95.81
PCB-1260	LCS	SL-089-SA7-SB-3.5-4.5RL LCS	2		0.39	1.7	1.67	119.76
PCB-1260	LCS	SL-018-SA8S-SB-4.0-5.0RL LCS	1.7		0.39	1.7	1.67	101.80

* - Outside control limits of 65% - 137%

SSFL

Table 3 - Summary MS Results

Compound	MDL (ug/kg)	Reporting Limit (ug/kg)	Lower Control Limit (%)	Upper Control Limit (%)	MS 1 Recover (%)	MS 2 Recovery (%)	MS 3 Recovery (%)	MS 4 Recovery (%)	MS 5 Recovery (%)	MS 6 Recovery (%)
PCB-1016	0.33	1.7	35	150	173 *	132	132	96	108	90
PCB-1260	0.39	1.7	35	150	437 *	269 *	161*	329 *	120	78

Compound	MDL (ug/kg)	Reporting Limit (ug/kg)	Lower Control Limit (%)	Upper Control Limit (%)	MS 7 Recovery (%)	MS 8 Recovery (%)	MS 9 Recovery (%)	MS 10 Recovery (%)	MS 11 Recovery (%)	MS 12 Recovery (%)
PCB-1016	0.33	1.7	35	150	96	114	144	126	108	90
PCB-1260	0.39	1.7	35	150	287 *	246 *	162 *	144	120	658 *

Compound	MDL (ug/kg)	Reporting Limit (ug/kg)	Lower Control Limit (%)	Upper Control Limit (%)	MS 13 Recovery (%)	MS 14 Recovery (%)	MS 15 Recovery (%)	MS 16 Recovery (%)	MS 17 Recovery (%)	MS 18 Recovery (%)
PCB-1016	0.33	1.7	35	150	0 *	114 *	108	102	90	179 *
PCB-1260	0.39	1.7	35	150	192 *	150	120	192	96	168 *

SSFL

Table 4 - RL-MS Results

Compound	Sample Type	Sample ID	Result (ug/kg)	MDL (ug/kg)	Reporting Limit (ug/kg)	True Value (ug/kg)	Recovery (%)	Detected Aroclor
PCB-1016	MS	SL-001-SA6-SB-0.0-1.0RL MS	2.9	0.33	1.7	1.67	173.65 *	
PCB-1016	MS	SL-008-SA7-SS-0.0-0.5RL MS	2.2	0.33	1.7	1.67	131.74	PCB-5460
PCB-1016	MS	SL-042-SA7-SS-0.0-0.5RL MS	2.2	0.33	1.7	1.67	131.74	none
PCB-1016	MS	SL-001-SA5DS-SS-0.0-0.5 RL MS	1.6 J	0.33	1.7	1.67	95.81	PCB 1254
PCB-1016	MS	SL-102-SA7-SB-4.0-5.0 RL MS	1.8	0.35	1.8	1.67	107.78	none
PCB-1016	MS	SL-125-SA7-SB-4.0-5.0 RL MS	1.5 J	0.34	1.7	1.67	89.82	none
PCB-1016	MS	SL-015-SA7-SS-0.0-0.5RL MS	1.6 J	0.34	1.7	1.67	95.81	PCB-5460
PCB-1016	MS	SL-015-SA7-SS-0.0-0.5RL MS	1.9	0.33	1.7	1.67	113.77	
PCB-1016	MS	SL-103-SA7-SB-4.0-5.0RL MS	2.4	0.35	1.8	1.67	143.71	none
PCB-1016	MS	SL-319-SA6-SB-4.0-5.0RL MS	2.1	0.36	1.8	1.67	125.75	none
PCB-1016	MS	SL-034-SA5DS-SB-4.0-5.0RL MS	1.8 J	0.38	1.9	1.67	107.78	none
PCB-1016	MS	SL-120-SA7-SS-0.0-0.5RL MS	1.5 J	0.34	1.7	1.67	89.82	
PCB-1016	MS	SL-034-SA5DS-SS-0.0-0.5RL MS	0.3 U	0.34	1.8	1.67	0.00 *	
PCB-1016	MS	SL-011-SA3-SB-4.0-5.0RL MS	1.9	0.34	1.7	1.67	113.77	
PCB-1016	MS	SL-034-SA5DS-SB-4.0-5.0RL MS	1.8 J	0.38	1.9	1.67	107.78	
PCB-1016	MS	SL-003-SA8S-SS-0.0-0.5RL MS	1.7 J	0.34	1.8	1.67	101.80	PCB 5460
PCB-1016	MS	SL-089-SA7-SB-3.5-4.5RL MS	1.5 J	0.37	1.9	1.67	89.82	
PCB-1016	MS	SL-018-SA8S-SB-4.0-5.0RL MS	3	0.37	1.9	1.67	179.64 *	
PCB-1260	MS	SL-001-SA6-SB-0.0-1.0RL MS	7.3	0.4	1.8	1.67	437.13 *	
PCB-1260	MS	SL-008-SA7-SS-0.0-0.5RL MS	4.5	0.39	1.7	1.67	269.46 *	PCB5460
PCB-1260	MS	SL-042-SA7-SS-0.0-0.5RL MS	2.7	0.39	1.7	1.67	161.68 *	none
PCB-1260	MS	SL-001-SA5DS-SS-0.0-0.5 RL MS	5.5	0.39	1.7	1.67	329.34 *	PCB 1254
PCB-1260	MS	SL-102-SA7-SB-4.0-5.0 RL MS	2	0.41	1.8	1.67	119.76	none
PCB-1260	MS	SL-125-SA7-SB-4.0-5.0 RL MS	1.3 J	0.4	1.7	1.67	77.84	none
PCB-1260	MS	SL-015-SA7-SS-0.0-0.5RL MS	4.8	0.4	1.7	1.67	287.43 *	Aroclor 5460
PCB-1260	MS	SL-015-SA7-SS-0.0-0.5RL MS	4.1	0.4	1.7	1.67	245.51 *	
PCB-1260	MS	SL-103-SA7-SB-4.0-5.0RL MS	2.7	0.41	1.8	1.67	161.68 *	none
PCB-1260	MS	SL-319-SA6-SB-4.0-5.0RL MS	2.4	0.42	1.8	1.67	143.71	none
PCB-1260	MS	SL-034-SA5DS-SB-4.0-5.0RL MS	2	0.44	1.9	1.67	119.76	none
PCB-1260	MS	SL-120-SA7-SS-0.0-0.5RL MS	11	0.4	1.7	1.67	658.68 *	
PCB-1260	MS	SL-034-SA5DS-SS-0.0-0.5RL MS	3.2	0.41	1.8	1.67	191.62 *	
PCB-1260	MS	SL-011-SA3-SB-4.0-5.0RL MS	2.5	0.4	1.7	1.67	149.70	
PCB-1260	MS	SL-034-SA5DS-SB-4.0-5.0RL MS	2	0.44	1.9	1.67	119.76	none
PCB-1260	MS	SL-003-SA8S-SS-0.0-0.5RL MS	3.2	0.4	1.8	1.67	191.62 *	
PCB-1260	MS	SL-089-SA7-SB-3.5-4.5RL MS	1.6 J	0.44	1.9	1.67	95.81	
PCB-1260	MS	SL-018-SA8S-SB-4.0-5.0RL MS	2.8	0.43	1.9	1.67	167.66 *	

* - Outside control limits of 35% - 150%